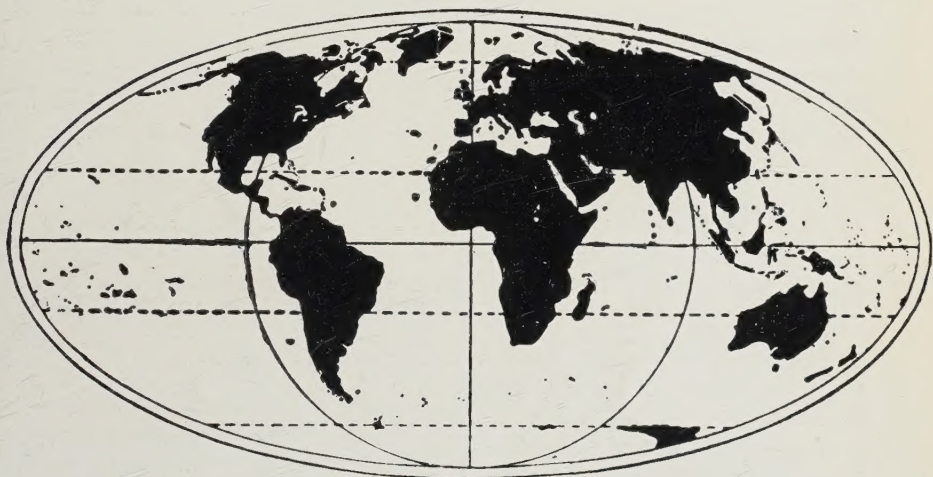


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THE CLEARING OF THE ENGLISH WOODLANDS*

H. C. DARBY

ONE of the most important factors in the evolution of our landscape has been the clearing of the wood which once clothed the greater part of the countryside. A ready means of reconstructing the vegetation of prehistoric times is by inference from the surface geology. The heavier impervious clays presumably carried great stretches of oakwood mixed with other trees. Recent work has shown that even the lighter soils were not devoid of wood when farming first began, and that so-called "natural heath" had its origin in the clearing of its wood by Neolithic farmers. In spite of the activity of successive prehistoric peoples, it seems clear that when the Romans invaded Britain in A.D. 43, the main centres of population were still upon the lighter soils; the real attack on the claylands had scarce begun. Four centuries of Roman civilisation left some mark. The Romans needed to clear not only for agriculture but also for other purposes; iron-smelting in the Weald and in the Forest of Dean must have consumed substantial quantities of wood. But the total effect of this clearing seems to have been relatively small. There was certainly no wholesale occupation of the claylands, and when the Romans left Britain, it was still very largely a wooded country. We are told that on the second edition of the Ordnance Survey Map of Roman Britain (1931) "regions of natural woodland (dense or open) are marked and have been restored upon a geological basis." In detail, the map has been criticised, and Professor Tansley has declared that there was probably a good deal more wood than is shown. Still it does serve to indicate something of the order of magnitude involved when we speak of the woodland of Roman Britain.

By the time of the Domesday Survey in 1086, much of this woodland still remained, but it is clear that the countryside was well on its way to becoming the open land we know to-day. Between the fifth century and the eleventh century, the attack upon the woodlands had begun in earnest, and had progressed a considerable way. Much of the clayland had become arable, and was tilled by the sturdy plough-teams of oxen that feature so prominently in the entries of the Domesday Book. This achievement was the work of the Anglo-Saxons and also of the Scandinavians in the north and east of England. It is perhaps not an exaggeration to describe their work as "the making of England."

What early records exist are filled with the struggles of the Anglo-Saxon states and with the Anglo-Danish conflict. But behind the

* Being a lecture given by Professor Darby to the Annual Conference of the Association at the London School of Economics on 2nd January, 1951.

clash of warfare, the process of clearing went steadily on. Even if the details are obscure, we are at any rate able to judge by results. Most of the quiet villages of the English countryside were once pioneer settlements battling to reduce the wood and thicket around them. An echo of this activity comes to us in a remarkable passage in a treatise by King Alfred (871-901): "We wonder not that men should work in timber-felling and in carrying and building, for a man hopes that if he has built a cottage on *laenland* of his lord, with his lord's help, he may be allowed to lie there awhile, and hunt and fish and fowl, and occupy the *laenland* as he likes, until through his lord's grace he may perhaps obtain some day book-land and permanent inheritance." The lumberman with his axe and his pick became the ploughman with his oxen. New farms and hamlets sprang up until by the time of the Domesday Book most of the villages we see to-day had come into being. It is not surprising that the Anglo-Saxon described the ploughman as the "grey-haired enemy of the wood." Over the span of six centuries or so (450-1086), we can obtain some idea of the distribution of the disappearing woodland from the evidence of place-names and from the statistics of the Domesday Book itself.

THE EVIDENCE OF PLACE-NAMES

The success of this expansion into wooded country is shown by many of the place-names of to-day. This evidence is becoming more and more clear as a result of the remarkable work of the English Place-Name Society. Under its guidance, the investigation of place-names has become a scholarly study whose conclusions are throwing light upon some of the darkest problems of early English history and geography. One category of place-names shows the existence either of wood or of clearings in woodland; to it belong names with such terminations as *ley*, *hurst*, *holt* and *hey*. There are also those numerous place-names that make specific reference to species of trees, e.g., *Oakhanger*, *Ashton*, *Hazelden*, *Elmstead*, *Buckholt* (beech wood) and *Berkhamsted* (homestead among the birches). But it is upon the main body of general wood names that we must rely in order to obtain some idea of the wooded countryside of Anglo-Saxon England. Sometimes, a place-name tells its story by embodying the memory of a personal name. Thus the village names of *Knowsley* and *Winstanley* in Lancashire are derived from men named *Cynewulf* and *Wynstan* respectively, while *Chorley*, found in Lancashire and elsewhere, was originally the clearing of the *ceorls* or peasants. These examples happen to be names of parishes but the names of hamlets, farms and topographical features within a parish are no less significant. The parish of *Chiddingfold* in Surrey contains the names of *Frillinghurst*, *Killinghurst* and *Sydenhurst* which indicate the wood of *Frith*, *Cylla* and *Sutta* respectively, and there are also other wood-names in the parish. Or again, the parish of *Hampton* in Warwickshire contains the name of *Kinwalsey* which, when traced back to its earliest form, is seen to be nothing other than *Cyneweald's haeg* or clearing.

In the Scandinavian parts of England, strange sounding terminations, such as *lundr*, *skogr* and *viothr* are incorporated in the place-names; all three mean "wood." In the Pennine valley of the Ure was the Forest of Wensleydale. The name Wensley itself means "Waendel's clearing." Higher up the valley there is a sequence of parish and other names that also mean wood: West Witton is the "farm in the wood" (*wudu ton*); Ellerlands is "alder wood" (*elri lundr*); Aysgarth is the "open space by the oaks" (*eik skarth*); Lunds is "wood" (*lundr*); Brindley is the "clearing caused by fire" (*brende leah*); Litherskew is the "wood on the slope" (*lithr skogr*). Similar names are encountered elsewhere in the Pennine valleys and in those around the North York Moors.

In the Celtic parts of England there is another group of un-English names that indicate the former presence of wood. The exposed plateau surfaces of Cornwall are not very favourable to wood, but there was once a fair amount in its valleys. A common element in Cornish names is cognate with the modern Welsh word *coed*, meaning wood; and it appears in such forms as cut, quite, coose and coys. Thus the name Trequite in the parishes of St. Germans, St. Mabyn and St. Kew is the same as Tregoose in the more western parishes of Probus, St. Erth, Sithney and the like. Penquite or Pencoose, meaning "wood-end," is another common Cornish name. But we shall be clearer about these and other Cornish names when the Place-Name Society's publications include a volume on Cornwall.

The relevance of place-names to a reconstruction of former woodland is well illustrated by the Cambridgeshire material collected by Dr. P. H. Reaney. On the western claylands of the county, there are many names ending in ley, while the present-day names of Croydon Wilds and Hatley Wilds contain the Old English word "weald." Other evidence also shows the use of the word "weald" elsewhere in this district, but the names have not survived on the modern map. It does seem as if this clay upland was once known simply as the Weald. On the eastern claylands of southern Cambridgeshire there is another group of parish and minor names denoting woodland, and it is clear that the great woodland of Essex once extended here. Finally, the clay islands of the Fenland also carried wood, and the southern part of the island of Ely contains examples of the use of "weald" or "walde" over a number of adjacent parishes.

The distribution of different types of names in Middlesex also provides a revealing supplement to any deductions from the surface geology of the county. Upon the gravels and Brickearth of the south of the county, names which do not indicate wood are common, e.g., those ending in ing and ton. The wood-names, on the other hand, lie on the intractable London Clay in the north of the county; here was a great expanse of wood, the memory of which is preserved by the name Enfield Chase. The contrast between the two maps that accompany the Place-Name Society's volume on Middlesex is a striking one. It was this northern woodland that was described in

the twelfth century as "a great forest with wooded glades and lairs of wild beasts, deer both red and fallow, wild boars and bulls." The wood-names on the map register a stage in the process of clearing it.

Warwickshire is another county with a marked contrast between north and south. The names ending in *ley*, for example, lie almost entirely north of the River Avon; there are very few in the south. William Dugdale's *Antiquities of Warwickshire*, which appeared in 1656, drew attention to the historic division of the county between the southern Feldon or open country and the northern Woodland, where lay the Forest of Arden. The earliest One Inch Ordnance Survey Maps show a contrast between the nucleated villages of the south, and the dispersed habitations of the north which seem to be the results of scattered settlement that proceeded as the woodland was cleared. This distinction has not been obscured even to-day despite the building developments of the nineteenth and twentieth centuries.

These few examples indicate the value of place-name evidence. It is not always easy to interpret, and the difficulties caused by the early forms of many names are sometimes very great. But its contribution to the history of the English countryside is a considerable one, and it becomes all the more interesting when compared with the evidence of woodland given in the Domesday Book.

DOMESDAY WOODLAND

Some of the effects of the Anglo-Saxon and Scandinavian invasions upon the landscape of England were summed up in the Domesday Book of 1086. One of the questions put by the Domesday Commissioners was "How much wood?" The form of the answers varied. Sometimes they merely stated that there was enough wood for fuel, or for repairing the houses, or for making and mending the fences. But normally, the amount of wood was recorded in one of two ways. For some counties, the measurements were given in terms of acres or in terms of length and breadth. For other counties, the wood was measured in terms of the swine it could feed, for swine formed an important element in the economy of the time, and they fed upon acorns or beech-mast. It must be remembered that the Domesday acre and furlong were not necessarily the same as our modern measures of those names. Nor can we with safety convert swine measures into modern acres. But even with these limitations, the evidence of the Domesday Book leaves us in no doubt about the wooded nature of large tracts of England. Essex, for example, was still a very wooded county. It had many villages with wood for over 1,000 swine, and some with sufficient even for 2,000. When the Domesday evidence for all England has been assembled, we shall be able to perceive a number of such heavily wooded tracts.

Unfortunately, the Domesday Book does not make much reference to the clearing of wood, but it is certain that clearings for cultivation were already known as "*assarts*," a word derived from the French

essarter meaning to grub up or to clear land of bushes and trees, and so make it fit for tillage. Hereford is the only county, however, for which they are mentioned. At Much Marcle there were 58 acres "reclaimed from the wood," and the word "assart" is written above "reclaimed"; at Leominster the profits of the assarts from the wood were 17/4; while both at Fernhill and at Weobley, land for one plough had been reclaimed. These four references are, in a sense, accidental, for the purpose of the Domesday record was to state facts and not to record previous history.

But wood was not only cleared for cultivation; trees were sometimes cut down for industrial purposes. The salt production of Cheshire and Worcestershire was kept going by means of the local woodlands which provided fuel for the furnaces. Thus the woods at Fladbury in Worcestershire provided fuel for the Droitwich salt-works, and cartloads of wood also came to feed the salt works of other places. Wood must have been cut down for many other industrial purposes, but the Domesday Book does not refer to these.

A third indication of clearing comes from East Anglia. The so-called "Little Domesday Book" that covers Essex, Norfolk and Suffolk gives more detail than the main Domesday Book that describes other counties. The following sample figures refer to the number of swine which the woods of different villages could support in 1066 and 1086 respectively:—

		1066	1086
Norfolk :	Cawston	1,500	1,000
	Baxton	1,000	200
Suffolk :	Homersfield	600	200
	Coddenham	180	113
Essex :	Coggeshall	600	500
	Clavering	800	600

It was at one time suggested that this reduction represented "that extension of the cultivated area (*terra lucrabilis*) that was always in progress." But Mr. Lennard has shown that the reduction in swine was not accompanied by expanding tillage but merely by devastation. "The tall trees had gone and with them the acorns and beech mast on which the pigs of the peasantry had fed. But the tree stumps, one suspects, remained and they must have been a serious obstacle to cultivation, while thickets of scrub must have taken the place of the standing timber"¹. In Essex, too, there are specific references to wasted wood, and the general picture that emerges is one of robber-economy and not agricultural development. The woodland here seems to have been cleared for the sake of the wood, and not for the sake of the land. In the three counties of Norfolk, Suffolk and Essex, a reduction of the woodland between 1066 and 1086 was noted in 112 villages.

The Domesday Book also gives us some hint of the clearing that

¹ Reginald Lennard. "The destruction of woodland in the eastern counties under William the Conqueror." *Econ. Hist. Rev.*, vol. xv, p.39, London, 1945.

was going on in the Weald, for it mentions many of the "denes" or swine pastures of the Wealden villages, and it draws a distinction between large denes and small denes; and also (obviously cutting across the other division) between *denes de silva* and other denes which had progressed beyond the wooded state and had reached the stage of being cultivated and of being measured by the ordinary measures of arable land. In a few cases, Benenden and Newenden, for example, places once rated as denes had come to be regarded as ordinary villages, and were entered accordingly in the usual manner. But we do not know enough about the conditions under which the swarming off from established villages took place, and we cannot speculate with any certainty.

Compared with the other informaton recorded in the Domesday Book, this evidence of clearing is not great, but it does show that along the Welsh Marches, and in East Anglia and in Kent, woodland was being cleared for one purpose or another; and there is no reason to believe that the same tendencies were not at work all over England. But although clearing was taking place generally, the reverse process was going on in some localities. Land devastated by raiding or by the march of armies, would soon become overgrown with thicket and wood if allowed to remain unattended. In Herefordshire, the Domesday Book records ploughlands in Hezetre hundred which had been wasted and were overgrown with wood; and elsewhere, too, there was land which had "all been converted into woodland."

POST-DOMESDAY CLEARING

The records of the Middle Ages and later times contain abundant evidence that the clearing begun so vigorously in Anglo-Saxon times, was continued throughout the length and breadth of the land. The various demands made upon the woodlands were of four kinds: (1) the need of wood for building and for domestic purposes generally; (2) the consumption of wood for industrial purposes; (3) the extension of arable and pasture; and (4) the necessities of shipbuilding. These must be considered separately. For each group only a few examples can be given, but these stand for a great mass of evidence scattered through a variety of records.

1. *Building and Domestic Purposes.*

One of the main necessities was to obtain wood for fuel, for building, for the making of utensils, spoons and platters, and for a hundred and one purposes about a house or farm. Many of the services rendered by a medieval peasant to his lord were connected with the care and use of wood; one very common service was that of carting wood to the lord's house for his use during the winter. Sometimes, these services were commuted by the payment of a rent, and terms like *woodpenny*, *woodsilver*, and *woodweye* were frequent in the accounts of a medieval manor. Moreover, the peasant needed wood for his own use, and his *wodericht* or wood-right, was a familiar right on most manors. It was given different names in different places. *Firebote*,

housebote, *heybote*, *wainbote* and *ploughbote* were some of the terms, and they indicated the right to take wood for fuel, for building and repairing houses, hedges, carts and ploughs. The details of the rights varied from manor to manor. On some manors a peasant could take all the wood he could knock down with an implement—hence the saying “by hook or by crook.” On other manors he could take only dead wood or windfalls; and there were many other variants. All these rights were carefully defined, and many manorial surveys show how meticulous was the care taken over the use of timber and over the lord’s rights. The cutting of wood without permission usually meant a fine in the manor court. Under these conditions did generation after generation of English peasants use the wood of their villages. It was not a very spectacular destruction but, taken together, the amount of wood consumed for purely domestic purposes must have been considerable.

Allied to these uses was the consumption of timber for public works and for larger buildings than the peasants’ cottages. In Cheshire, for example, the chief forester of Delamere Forest was instructed over and over again to allow the delivery of timber for the repair of castles, churches, mills and bridges. The building accounts of many cathedrals show that large quantities of timber were used partly for the fabric itself and partly for scaffolding. When Ely Cathedral was being built, the master carpenter and others made many journeys for the selection and purchase of timber. On some occasions they seem to have bought standing trees for the felling of the trees was charged separately. Examples of this kind of purchase could be multiplied.

2. *Industrial Demands.*

Industry took a heavy toll from the woodlands. In the north for example, the lead and copper mines of Lakeland needed pit-props for mining and charcoal for smelting, and the German miners around Keswick in the sixteenth and seventeenth centuries cut down oak and ash and birch. Their activity, it is true, was short-lived, and by 1675 it had ceased, but in the meantime the woods had gone from great areas. In the south, in 1595, the Cornish tin miners needed wood “to bynde the mynes from falling” and to make charcoal for smelting the tin. Elsewhere, round about 1601, there was a complaint that glass-making involved a “continual spoile of woods.” There were many similar complaints in many areas during many periods.

Of all the industries that consumed wood, the most devouring was the iron industry. During the twelfth and thirteenth centuries, the main centre of the iron industry was the Forest of Dean, then the home of the wolf and wild boar as well as of the deer. The number of iron forges seems to have varied from year to year. In 1282 there were sixty forges, and they must have consumed a large amount of wood in the form of charcoal; at any rate there were many complaints about charcoal-burning, and there seems to have been an extensive

illicit trade in timber. Various attempts were made to control the cutting down of trees by limiting the amount of wood to be cut in each year; some forges were put down in the attempt to restrict the consumption of wood.

During the fourteenth century, the Forest of Dean began to be rivalled by the Weald as an iron centre, and the demand for charcoal was one of the main factors in the clearing of that great woodland. In 1548, a Commission was appointed to enquire into the destruction of wood in Sussex. It was told that there were 53 "mills and furnaces" in the county, and that if they were allowed to continue, all the villages on the Downs between Lewes and Bramber were likely to become uninhabited, for lack of timber and fuel. But despite the report of the Commission, and despite Acts of Parliament in 1558, 1581 and 1588, the work of destruction continued. In 1607, John Norden painted a gloomy picture: "He that hath known the welds of Sussex, Surrey and Kent, the grand nursery especially of oak and beech, shall find such an alteration in less than thirty years as may well strike a fear lest a few years more, as pestilent as the former, will leave few good trees standing in those welds." It may well be that some of the accounts of destruction, and there were many, were exaggerated. Daniel Defoe in 1724 said that he found the complaint about shortage of timber "perfectly groundless." In his eyes, the three counties of Kent, Sussex and Hampshire together formed "one inexhaustible storehouse of timber." But the general evidence does not bear out his view.

The solution to the problem raised by the scarcity of wood was to find a substitute, and it is not surprising that during the seventeenth century many treatises suggested the use of coal instead of charcoal. The experiments that followed were attended by varying degrees of success. About the year 1709 Abraham Darby was smelting with coke at Coalbrookdale in Shropshire. By the middle of the eighteenth century the use of coal had become common. The future of the iron industry was linked up with coal and not wood. Names such as Forge Wood and Furnace Wood recall to-day the activities that had caused so much consternation in the past.

3. *The Encroaching Arable and Pasture.*

It is clear that in post-Domesday times, as in earlier years, throughout the length and breadth of the countryside, the axe was at work cutting down the trees, and pick at work grubbing up the roots; and the plough followed them to provide for an increasing population. Mr. H. S. Bennett has described the role of the clearing in the life of a medieval village. "For a family burdened with more children than the shares in the common fields would warrant, such assart land was a godsend. Here they could utilise their spare labour, and produce something to help fill the many hungry mouths at home."² The records of every county tell their own story of this spreading cultivation, and references to assarts are frequent in charters and chronicles and

² H. S. Bennett. *Life on the English manor*, Cambridge, 1937, p. 51.

in the Close Rolls and Patent Rolls. Requests for permission to assart; grants of land "with leave to assart"; gifts of land "to be assarted as seems best"; records of "new land recently brought into cultivation"; disputes about the "tithes of assarts and clearings"—all these items are encountered again and again in the records of the Middle Ages. Much of the work, however, must have escaped mention in any document. Memorials of this activity exist to-day in the form of field-names. In Nottinghamshire, the Middle English element "stubbing" (places where trees have been stubbed) appears in the names of fields in many villages. Other names, to be found alike in ancient documents and on modern maps are "sarts" or "assarts," intak or intake, and stokking, a "stump clearing."

Many of the circumstances of this activity are far from clear, but they certainly varied from place to place—an occasional clearing here; and an enlargement of a field there; an enclosure for pasture in another place; maybe even the throwing off of a hamlet elsewhere. Sometimes a clearing was made by a single settler, with the permission of his lord to whom he paid a rent; the result was an enclosed field. At other times, a clearing was made by a large group of peasants who joined together for the purpose. In this case the newly won land might be distributed in strips among the various tenants in proportion to their holdings in the open fields of the village.

The clearing continued in post-medieval years. In 1553, a "true-hearted Englishman" named William Cholmeley described how "the unsatiabable desyre of pasture for sheep and cattel" had resulted in wood being grubbed up by the roots during the preceding thirty years. Walter Blith, in the following century, pointed to woodlands "which now enclosed are grown as gallant cornfields as be in England," and he mentioned the western parts of Warwickshire, the northern parts of Worcestershire, together with Staffordshire, Shropshire, Derbyshire and Yorkshire. It had also happened elsewhere. One early historian of Nottinghamshire, writing anonymously in 1641, told how in his lifetime "numberless numbers of goodly oak" had been replaced by sheep and oxen "grazing upon a Carpet Green."

It was the same during the eighteenth century. Many of the county reports published by the Board of Agriculture at the end of the century refer to the grubbing up of trees for cultivation. Arthur Young had witnessed the operation in Suffolk, and thought that the disappearing woodland was "not at all to be regretted" for corn and grass were commodities of much more value than wood. Many would not have agreed with him. To mention but one more example, the author of the report on Gloucestershire noted that "in every year many acres of beech woods are destroyed, and given up to the plough." It was the same almost all over the country.

In the nineteenth century the cornland continued to take its toll of the remaining woods. About 1851 what remained of the Forest of Hainault was converted into arable land. A manufacturer of steam ploughs entered into a contract to clear the land, and did so

in six weeks by attaching anchors to the roots of the old oaks, and tearing them out. Epping Forest nearly disappeared in the same way, but after much vigorous action that involved a law suit, it was secured for public enjoyment, and Queen Victoria proclaimed it free in the summer of 1882. But what was thus preserved was only a fragment of its former glory.

4. *The Necessities of Shipbuilding.*

The expansion of England's mercantile marine, and the development of the English navy from the Tudor Age onwards, depended upon an adequate supply of oaks for the hulls of the ships; fir trees for the masts had, of course, to be imported from Baltic lands. Of the many Royal Forests, the three main ones upon which the navy relied for its timber were the Forest of Dean, the New Forest and Alice Holt Forest in north-western Hampshire. But the whole of the south-east counties formed important suppliers of wood. The woods of private landowners were at times an important source and, although this was uncertain, it did make up for the deficient output of the royal forests themselves.

It has been said that the admirals of the Spanish Armada had orders to destroy the Forest of Dean whatever else they did to cripple England's naval strength. English seamen were only too conscious of their timber difficulties. The commander of the fleet that defeated the Armada was Lord Howard, and a few years later we find him writing to the Queen to complain about "the state her woods are now in, and what want there is for building and repairing her ships which are the jewels of her kingdom." The Dutch Wars of the following century, the maritime wars of the eighteenth, and the Napoleonic Wars were a heavy and continuous drain upon suitable English oak. Samuel Pepys, in the middle of the Dutch Wars, could only say "God knows where the materials can be had." In the following century, at the end of the Seven Years War, a Liverpool shipwright named Roger Fisher painted a gloomy picture in his book called *Heart of Oak: the British Bulwark* (1763). He said that many counties had far less wood than they had carried forty years before. During the Napoleonic Wars, Lord Collingwood used to carry a pocketful of acorns to drop at intervals, but this was an indication of the urgency of the problem and not a solution. English timber never recovered from the strain of the war with France, and English ships came to rely more and more upon foreign sources of supply, and particularly upon Canadian oak and Indian teak.

The influence of the timber shortage appeared in many ways, and the subject has been discussed by Professor Albion in his *Forests and Sea Power*. The problem was felt, he says, "not only in the Navy itself, but in international law, in naval architecture, and in England's foreign, colonial, commercial, and forest policies as well."³ It is true that England muddled through to a dominion of the seas, but only with

³ R. G. Albion. *Forests and Sea Power*, Harvard, 1926, p. vii.

much anxiety. The timber-problem remained acute until, on 9th March, 1862, the Battle of Hampton Roads in the American Civil War demonstrated the superiority of the iron-clad. Within a few months, the whole policy of naval construction had to be revised. But although the timber problem soon became only a memory, it had left a permanent mark on the English countryside.

FOREST POLICY AND AFFORESTATION

The clearing that had taken place in the Middle Ages still left England with a plentiful supply of wood. When Henry VIII came to the throne, large tracts of country yet remained covered with trees. But very soon after this, there were complaints about a shortage of timber, and the shortage developed into the problem that occupied the attention of statesmen and publicists for many centuries. It was not only that the woods were becoming smaller but that the demand for wood was growing greater. There was, moreover, a complete lack of any forest policy. Elizabeth had sold licenses to cut in the royal forests in order to obtain money, and this practice was continued by the impecunious Stuarts. The outbreak of civil war served only to encourage indiscriminate destruction. The woodlands of royalists were despoiled, some "for the mere sake of spoiling"; those royalists who were fined frequently had to sell their oaks to find the money; and the woods on sequestered estates were often sold to settle various claims. Camden's *Britannia* had described the Oxfordshire hills as "clad with woods," but when Edmund Gibson translated and edited the work a century or so later, in 1695, he added: "this is so much altered by the late civil wars that few places except the Chiltern country can answer that character at present. For fuel is in those parts so scarce that 'tis commonly sold by weight, not only at Oxford, but other towns in the northern part of the shire." It is quite clear that by the Restoration in 1660 the condition of the English woodlands had entered a new and grievous phase.

The Admiralty in its alarm over the timber shortage consulted the newly formed Royal Society which in turn asked John Evelyn to report upon the problem. The result was the appearance in 1664 of Evelyn's *Sylva: a Discourse of Forest Trees, and the Propagation of Timber in His Majesty's Dominions*. It made Evelyn's reputation before his diary appeared and it has become a classic. It surveyed the destruction due especially to tillage, to industry and to shipping, and it preached the duty and necessity of planting trees to replace the wastage. It ran into many editions, and in that of 1679 Evelyn went so far as to say that millions of trees had been planted as a result of his book. Whether this was so or not, it is certain that the trees planted during these years came to maturity in time to sustain the British navy through the wars of the eighteenth century. But the energy soon spent itself, and it seems that few new plantations were made in the first half of the eighteenth century. In order to re-awaken interest, the Royal Society of Arts started, in 1758, to offer gold and

silver medals for the largest plantation of each kind of tree every year. The first recipient was the Duke of Beaufort who obtained a gold medal for sowing 23 acres in Gloucestershire with acorns. Awards continued to be made up to 1821, and, as a result, it is estimated that over fifty million trees must have been planted. Many tracts of wood to-day owe their existence to the Royal Society of Arts.

Not all the planting of the eighteenth century was for naval timber, or indeed for any economic purpose. Some of it, in the form of game and fox coverts was for sport. Much of it, in the form of ornamental belts and decorative spinneys, was for pleasure and for enhancing the amenity of a locality. During the eighteenth century, parks surrounding large country houses became an established characteristic of the countryside, and these parks feature prominently on the county maps of the time. Very often, ornament and utility were combined, and the owners of many country seats did much not only to improve their habitations but to provide timber for future generations. A general picture of planting activity may be seen from the chapters dealing with "Woods and Plantations" in the county reports issued by the Board of Agriculture round about 1800. In Northumberland, for example, we are told that "plantations, on an extensive scale," were rising in every part of the county, adding greatly to its "ornament and improvement." It was the same in the south of the realm. In Gloucestershire there were numerous planters "who have skreened the bleak spots of the Cotswolds, and have improved the general face of the county." Locally, the change in scenery was often very marked and the widespread planting introduced a new element of parkland into the countryside. It bore witness, too, not only to a new fashion in taste, but to a concern for the timber supplies of the country.

One feature of the new planting was the widespread use of new species. The traditional timbers of England were the hardwoods—oak, ash, beech, elm and the like. But now, softwoods were introduced on a moderately large scale—the Scots fir, the larch, the spruce, and new varieties of fir from abroad—the Silver fir and the Douglas fir for example. These strangers to the English landscape were not welcomed by everyone. William Cobbett, riding by Woolmer Forest in Hampshire in 1822, was provoked to exclaim of a local landlord: "What he can plant the *fir* for God only knows, seeing that the country is already over-stocked with that rubbish." At the other end of England, William Wordsworth in his *Guide to the Lake District* (1835) made similar complaints. "Ten thousand" larch trees "stuck in at once upon the side of a hill," and "platoons" of Scots fir, seemed to him to be but poor substitutes for the native timber of the Lakeland valleys. Yet, in spite of this attitude, the conifers had come to stay and to bring a new value to poor hillsides and sandy heaths. The time was coming when English poets were to regard the Sussex pine trees as part of the English tradition, forgetting what upstarts they were.

All this planting of conifers and other trees, while important locally,

did not change the general character of the English landscape. England had become a land of hedgerow, copse and park. The progress of the enclosure movement, and the break up of large open fields into smaller closes, had brought many hedgerows into beings. H. B. Woodward in describing the country around Norwich wrote in 1881 : " A characteristic feature of the country is that it appears well wooded, and it has been remarked that in travelling through it one seems to be on the verge of a forest which is never reached, a deception that arises from the numerous trees (mostly oak and ash) growing in the hedgerows."⁴ From ground level much of England looked more wooded than it was. But if an airman could have flown over the countryside round about the year 1881 he would have seen little to remind him of the great woodlands that confronted the Anglo-Saxons when they first arrived in Britain. Since 1881 there have been important developments in planting, and the work of the Forestry Commission has transformed many areas, but the generalisation still remains true.

⁴ H. B. Woodward. " The Geology of the Country around Norwich." *Mem. Geol. Surv.*, 1881, p. 1.

THE TEACHING OF GEOGRAPHY FOR INTERNATIONAL UNDERSTANDING *

I.—SECONDARY SCHOOL GEOGRAPHY

BERTHA M. BROADHURST

HOW can the teaching of geography in the Secondary School be made a real and vital means of promoting international understanding ?

At the Unesco Seminar two groups of delegates chose to devote their attention to this problem. One group dealt with the teaching of geography to children of twelve to fifteen years, corresponding approximately to the age range of the Secondary Modern School in this country. The other group made a special study of the work that could be undertaken with older pupils, from fifteen to eighteen years ; this could be exemplified by the work of our Grammar Schools.

The younger age group was led by M. Alagöz, Professor of Geography at Ankara University, Turkey, and the members of his

* An interim report on the important Unesco International Seminar held in MacDonald College, Montreal, from July 12th–August 23rd, 1950, was received from Mr. N. V. Scarfe while the seminar was still in session and published in the September, 1950, number of *Geography*. The two reports printed here were presented by the two British delegates, Miss B. Broadhurst of the City Training College, Leicester, and Miss R. Phillips of Homerton College, Cambridge, to the Annual Conference of the Association on January 2nd, 1951.

group represented New Zealand, Switzerland, France, Germany, the United States, the Netherlands and Canada. The older age group was at first led by M. Ficheux, an eminent French geographer, whose book *The Teaching of Geography* had been thoroughly examined by each delegate to the Seminar before leaving for Canada. Unfortunately M. Ficheux was obliged by illness to return to Paris and his work was carried on by the Abbé Pfulg, from Switzerland. Members of this group came from Canada, Brazil, Egypt, Japan and Australia.

Briefly the scheme of work in the fifteen to eighteen age group fell into six sections, and included a very careful and detailed examination of the answers to the questionnaires given to all delegates so that an overall picture might be framed of the nature of the geography taught to pupils of these ages. The psychological characteristics of pupils in this age group were also examined in order to get a clear idea as to the pupils' main interests and abilities. For the rest, geography syllabuses, methods of teaching geography, the geography room and its equipment, and examinations were all carefully and exhaustively considered. While this work was going on the members of the group constantly brought forward this query: is the geography teacher deliberately setting out to promote international understanding through his geography lessons, or does he assume that if he teaches geography well this end will automatically be achieved? The opinions of the group were exceedingly varied on this point, but they were generally agreed that in the more academic secondary schools, presumably those which would correspond most closely to the grammar schools of this country, geography teachers rely in the main on out of school activities to teach and promote international understanding. Another group under the leadership of Miss G. Howells, H.M.I., United Kingdom, was engaged in a study of the *Methods of Teaching Geography*, and a sub-section included these "out of school activities." A few mentioned here may be of interest; the School Geographical Society, the International Club, the Letter Book, Pen Friends, Ship Adoption and the International Red Cross. It was, of course, concluded that many of these activities could be carried on by pupils in the twelve to fifteen age group.

The work of this latter group fell into four main sections. As in the older group a very detailed examination of the answers to the questionnaires was made and the psychology of the child from twelve to fifteen taken into consideration; syllabuses, methods of teaching and teaching aids were all studied. It was interesting to note the similarity in the content of the syllabuses, but the wide variety of the methods of teaching. The number of periods given to geography in the week varied from two in some schools to six in others. Most participants in this group were strongly in favour of the emphasis that should be laid on all "active" methods of teaching and learning, especially for those pupils less academically inclined. The member from Australia, Miss A. Knowles, an Inspector of Secondary Schools in New South Wales, gave the group the assurance that in the schools with

which she came in contact, her geography teachers made the promoting of international understanding one of the most important aspects of their work. The other participants in the group were regretful that they could not give this assurance.

The final report of the work of the Seminar will give more details of the work of these two groups and will, no doubt, lay stress on the urgency of the problem and the responsibility that the geography teacher must accept in trying to find a solution to it. Both groups were unanimous in their opinion that the pupils of to-day must realise the interdependence and the complementary nature of the different nations and countries, and this understanding will become a powerful factor in promoting friendship and goodwill.

The final report will also summarize the recommendations that each group has presented to Unesco for consideration which, if adopted, should be of great value to the geography teacher. Unesco has been asked to set up a central library for the exchange of geographical publications; to facilitate the exchange of text books, teaching materials, pictures, maps, etc.; to inform teachers on the various researches and enquiries that are being carried out, so that the teacher may be kept abreast of modern thought and practice.

This short summary can give only an inadequate account of the work of these two groups. To those who took part in this work, the discussions and talks were eminently satisfying and gave unique opportunities for exchange of ideas and opinions, a certain and unfailing means of promoting international understanding.

II.—TEACHER TRAINING AND SUPPLY OF INFORMATION TO TEACHERS OF GEOGRAPHY

ROSETTA F. PHILLIPS

Professor O. Tulippe of the University of Liège was the leader of the group which discussed Teacher Training and its members were drawn from Australia, Brazil, Denmark, Greece, Switzerland and the United Kingdom. At the outset the group conducted inquiries as to the social and educational backgrounds of prospective primary and secondary school teachers in the countries represented at the Seminar (a total of 23) and as to the examinations and other entrance tests taken before entry to college. As a result the group strongly recommended the wider use of personal interview tests in selecting future teachers for training, and it advocated that written examinations for entrance to college should test powers of reasoning and judgment as well as memory.

For intending *Secondary School Teachers* (Grammar type) it was found necessary to urge the desirability of a university degree in

geography since in some countries (e.g. Switzerland) geography is still taught at this level by teachers who have taken their degree in other subjects. The group considered that this university course should last at least three years; that it should cover both the physical and the social aspects of geography, but at the same time it should preserve the essential unity of the subject; that it should give training in the spirit and the techniques of modern geography by giving plenty of local field work and as much foreign travel as possible; that the regional geography of the world should be treated and that teaching on the geographical aspects of current world problems (particularly conservation of natural resources) should form a significant part of degree courses in geography. Secondary teachers, they said, should also have a good general cultural and philosophical education and a training in methods of teaching.

For the teacher of the *Middle School* (roughly equivalent to our Secondary Modern), discussion chiefly emphasised the need of a fuller geographical training than is usual at present.

Greater attention was paid to the training of the *Primary School teacher*, because in general such teachers have at present very little special geographical education, and Unesco recognises the vital importance of the Primary School stage in education for international understanding.

Geographical training for Primary school teachers should be strongly practical; field work is essential and it should be prepared at two levels—that of the student and that of the child; students need to learn how to make and use relief models, to build up simple museums and libraries, to select and use maps, statistics and audio-visual aids; they must learn the sources of teaching aids, and the art of vivid description and narrative and of giving simple explanations. Practical training of this kind requires an afternoon (or equivalent time) per week.

In their geography lectures intending Primary school teachers must be given a sound appreciation of the scientific side of the subject and for this purpose each training college needs at least one geography specialist on its staff. For educating students toward the ideals of international understanding due emphasis must be given to human geography, and it was considered especially important by the group that teaching on conservation of natural resources and on the geographical aspects of the work of the United Nations Special Agencies should be given. Two hours weekly were considered necessary for such theoretical training in geography.

The group discussed the qualities and the qualifications of the geography lecturer at the training college, and it set some high standards in this respect. Stress was laid upon the needs for adequate, well-conducted school practice periods with good opportunities for students to see lessons embodying current ideas on methods. Students should also be encouraged to make contact with professional societies of geographers during their training, and it was suggested that the

geography lecturer should do all he can to help students after leaving college to follow up with refresher courses, field excursions, etc. Students should also be encouraged to orient their teaching as fully as possible towards international understanding.

Finally, the group requested Unesco's aid in (i) promoting more exchange visits of students and professors between countries; (ii) providing colleges with statistics, with photographs and with more information on conservation and on the work of the United Nations Special Agencies.

Professor O. Tulippe also led the group on The Supply of Information to Teachers of Geography the members of which were drawn from Canada, France, Greece, Italy, Switzerland and U.S.A. The modern geography teachers finds that one of his greatest problems lies in attempting to keep his knowledge up-to-date; this problem was a constantly recurring theme at the Seminar, and the group agreed that it can only be met by persistent personal work.

An interesting investigation was conducted by the group into hours of teaching and salaries in 18 different countries, in order to judge whether teachers of geography really have the time and the means at their disposal to keep themselves up-to-date. The information was supplied by delegates to the Seminar, and the figures would require careful checking before they could be used in print, but as a result of this tentative survey the group judged that in general teachers have neither the time nor the means to keep themselves abreast of affairs. The group considered that for this purpose conditions appeared to be most favourable in France, Switzerland, and Australia; in some countries conditions were obviously well below United Kingdom standards.

Nor is the information teachers require generally easily accessible; it has to be sought in official and other reports, from geographical journals and treatises, from newspapers and popular magazines, or in university libraries. Can the education authorities do more to provide the up-to-date information which geography teachers need?

Interesting examples were quoted at the Seminar of what is being done in some countries to help teachers in this respect. In Brazil some 1,500 high school teachers, we were told, are regularly circularised by up-to-date pamphlets prepared by the Central Geographical Bureau. In France since 1945 a great effort has been made by the Department of National Education, and now 1,000 *lycées* are supplied with credits which provide them with regular copies of:—

1. *Les Annales de Géographie* (6 issues a year)

2. *L'Information Géographique* (5 issues a year)

3. The principal publications of French documentation. Four of these are of considerable geographical interest and are sent to all secondary schools:—

- (a) *Les Cahiers Français d'Information*, which appear every two weeks give information on the political, economic, social and cultural activity of France.

- (b) *Les Problèmes Economiques* appear every week and contain a selection of articles on geography and political economy from the chief newspapers and reviews of the world.
- (c) *Les Notes Documentaires des Etudes*, once or several times a week, give complete studies of certain countries, products and question of world interest, prepared by specialists.
- (d) *La Documentation Photographique*, appears twice monthly and contains 12 photogravure plates on artistic, geographical and economic subjects.

This literature is all indexed for subscribers. In Belgium similar, though less ambitious, documentation is regularly supplied to geography teachers in secondary schools.

The group discussed the characteristics of the information teachers should receive; it must, they decided, be objective, sufficient in quantity, accessible, regular and standardised. It is best if prepared by geographers themselves with the help of statistics supplied through the United Nations Organisation. The group recommended that Unesco be asked to help in this matter of helping geography teachers in all parts of the world, and that it form a central collecting and distributing organisation for this end.

Recommendations to Unesco :—

(i) *Statistical Information*. The group advocated the production of three series of record cards; (a) one set giving 5-yearly means for the production and trade in the chief raw materials and manufactured goods; (b) a second set giving up-to-date standardised statistical data for the different countries; (c) a third set giving tables of equivalents for easy conversion. The figures should be obtained through U.N.O., tabulated by Unesco (Paris) and then distributed in the different countries by the Unesco National Commissions or by the National Geography Committees.

(ii) *Geographical Information*. The latest geographical information in each country should be assembled together in digest form (from articles, research, books, etc.), by a geographer of repute in that country, and this material should be sent on to Unesco (Paris) or to the International Geographical Bibliography to be used in producing 3-monthly digests for circularising to schools as suggested under (i).

(iii) *Photographs and other Visual Aids*. The group asked Unesco to create an international photographic library. Geography teachers could be helped enormously by some means of obtaining pictures from abroad. Many fine sets were on show in the Seminar exhibition rooms and made us feel envious. It was suggested that exhibitions of photographs from various countries be built up in Paris by Unesco, and circulated on loan in the first instance to countries normally poor in such materials. To aid Unesco, participants listed sources of good pictures and other visual aids in their own countries, and we hope that this scheme will come to fruition.

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THE FRENCH ELEMENT IN THE POPULATION OF EASTERN CANADA

P. E. HATTERSLEY*

THIS paper deals with Canada east of Montreal and north of the Ottawa River—the home of some three and a half million French Canadians, most of whom are the descendants of the “systematised” colonisers who left France in the reign of Louis XIV as planned settlers, whose lives were governed by monarch, noble and priest (Fig. 1). Some three million of them live in Quebec Province west of the Saguenay River and Rivière du Loup. Small groups of Frenchmen live also in the Peace River area, in the Park belt of the Prairie Provinces, in Ontario, and in the clay belt of northwest Quebec. The first French settlement was at Tadoussac in 1559 and in 1608 Quebec City, to-day the capital of French Canada, was founded: in its population of 151,000¹ it boasts over 92 per cent. Frenchmen. Seventy-three years earlier, Cartier had discovered Montreal, which is now the largest city of the Dominion and in its 1,140,000 inhabitants contains one-third of the population of Quebec Province.

In the 17th and 18th centuries Metropolitan France was wealthier and more populous than either England or Scotland, yet by 1763, only 63,000 Frenchmen had settled in Louisbourg and the Lower St. Lawrence compared with over two million Britons in New England and the West Indies. After the American War of Independence, many United Empire Loyalists sought refuge in British North America, and settled in what are now called the Maritime Provinces and the Eastern Townships: others pushed westwards beyond the French settlements into less isolated and more fertile areas of Upper Canada, where foreign laws, customs, religion and language were not protected by Act of Parliament. Prior to 1839, as a generous and practical expression of a promise given to a defeated people, the French, guaranteed the exercise of their own traditions, had been granted Representative Government in their own province. Lord Durham then felt impelled to recommend fusion with Upper Canada in order to subdue the French and to ensure the potentialities of Canada as “the rightful patronage of the English people.” Although he had great faith in the future harmonious development of Canada as a British Colony having Responsible Government, his policy failed. The later partnership between French and English² politicians which defeated the object of

* Mr. Hattersley is a W.E.A. Resident Tutor in Norfolk. He became interested in Canadian population problems during his period of aircrew training in Canada in 1944 and studied them further on returning to Oxford in 1946.

¹ *Canadian Year Book*, 1950 (1941 Census), chap. iv.

² The terms “British”, “English” and “Scots” are used to include those who are descended from settlers arriving from Britain and the settlers themselves. The term “French” indicates those whose forbears came from France and who are now Canadian citizens.

Durham's union—the anglicisation of the French—did much to soften economic bitterness which came with the gradual development of Canada's industrial potentials by British and American capital under their control. To-day, the grievances of French Canadians, on the surface at any rate, are economic and to a large extent are the result, on the one hand, of the Roman Catholic Church's control of education and the conservative outlook which it encourages, and, on the other hand, of the enterprise of British and American business houses and the investment of foreign capital in Canada's "French" province.

After the 'invasions,' the French remained an old and stationary society in a new and changing world and disliked the solemnity of their village life being disturbed by the trading activities of the English, who intended not only to make a mere livelihood but to save for a rainy day and to expand their businesses. The French were not used to this awareness of possible want; they relied upon the charity of M. le Curé and his parishioners. They lacked business acumen and agricultural progressiveness. The characteristics of the French Canadian are those of a people which can be found not only in Sherbrooke and Beaupré but in Nantes, Poitiers and Rennes. They have a pride as strong as that of the Scots or the English, in their national character—their Church and rosaries, their large families, their oxen and their winepresses. The French Canadian to-day is largely a town dweller and to some extent has managed to conquer his natural tendency to remain in the 18th century. Too much emphasis cannot be placed upon the power and influence of the Roman Catholic Church, which sought to preserve the French language as a basis of Roman Catholic supremacy. There has been little immigration from France since 1791 but the Church is stronger than ever. The curé leads the people; the parish is not a mere place like a western township as, for instance, in Alberta; it is a key institution of French Quebec rural society. Professor Hughes, speaking of the Eastern Townships, says that the Anglican Church is a time weathered monument to the past; the Roman Catholic parish is a going concern.³

Of the 29 per cent. of Canada's inhabitants who live in Quebec Province 380,000⁴ work in industry. There is a high birth rate of 31 per 1,000⁵ in the province, but it remains to be seen whether, as a result of urbanisation, the French worker, who has now no need to produce the labour required on his farm, and who is not under such close parochial Church surveillance, will not tend to have a smaller family. Birth control devices are advertised in French *boutiques* and in the press. In the last ten years, however, Quebec Province shows a population increase of 1.8 per cent. per annum as compared with 1.09 per cent. for Canada and 1.3 per cent. for an equally industrialised Ontario. Amongst the French, the language is that of the 17th

³ E. C. Hughes, *French Canada in Transition*, London, 1946, p. 32.

⁴ *Canadian Year Book*, 1950, chap. xvii.

⁵ *Canadian Year Book*, 1950, chap. v.

FRENCH ELEMENT IN POPULATION OF E. CANADA 91

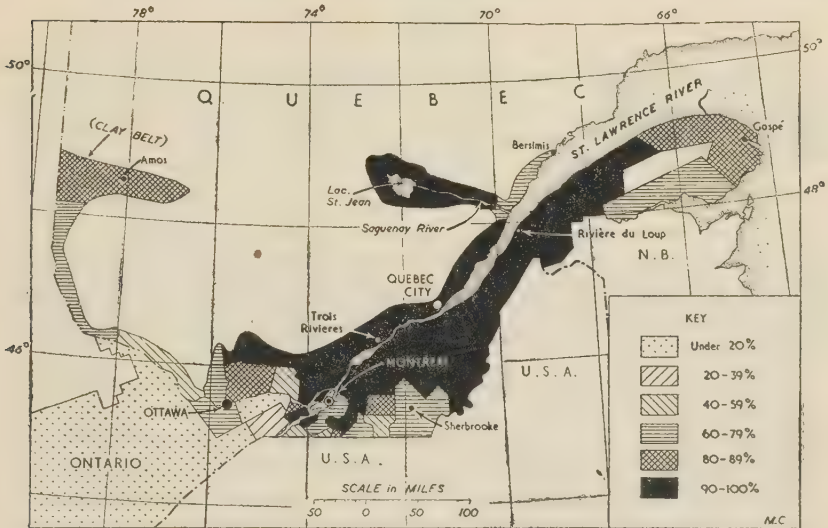


Fig. 1.—Distribution of the French element in the population of Eastern Canada.

century with its sailor phrases and obsolescent meanings.⁶ About 13 per cent. of the total population of Canada is bilingual but 19 per cent. can speak only French.⁷ The Roman Catholic Church dominates Society and in town and country alike mixed marriages are strongly discouraged ; social and cultural activities are necessarily duplicated.

It is possible to distinguish between conditions in the towns and conditions in the country (Fig. 2) ; 63 per cent. of the population is 'urban.'⁸ As I travelled from Montreal to Quebec City I noticed that town councils were making every effort to attract light industry. There was obviously a surfeit of sites but the great attraction seemed to be the abundant supply of relatively cheap labour, especially female, recently made available in the countryside by the mechanisation and intensification of farming. In the near future, the towns may well be unable to absorb this surplus unless there is a considerable expansion of industry, for their own populations are prolific enough to provide the next generation of urban workers. Light industry developed in the countryside itself could provide employment within a rural environment.

Those who have remained in the country are of the old type ; old in their minds, their manners, their activities, and their faith. The farmer has his loyalty to his language and to his faith strengthened by his isolation ; his life is hard and is based, east of Quebec City, on fishing, hunting, lumbering as well as upon farming. He is the *habitant* owning his own small farm and working it with the help of his family, often with old-fashioned equipment ; he uses little scientific method ;

⁶ Horses are "moored" ; "anchors are weighed" when brakes are taken off. The accent is coarser than that of the Breton or Norman coasts.

⁷ *Canadian Year Book*, 1947, p. 122.

⁸ *Canadian Year Book*, 1950, chap. iv., p. 156.

GEOGRAPHY

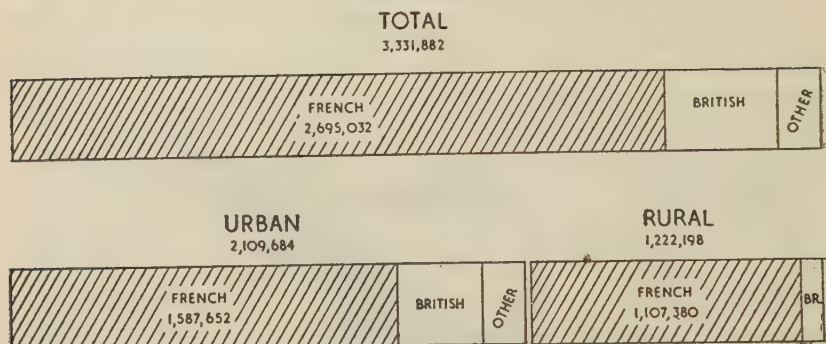


Fig. 2.—Composition of the population, Province of Quebec, Dominion Census 1941.

new ideas seldom reach him. Self-sufficiency remains his ideal which means, in effect, that he goes without what most folk call essentials; but he would deny that his rusticity is that of poverty, although his only luxury is “whisky blanc.” Education is wholly in the hands of the Roman Catholic priests who rigorously censor films as well as books. To-day, the *habitant* is less able to provide for his sons, as he once did, the education that he himself cannot understand . . . for it used to be his boast that at least one of his sons was training for the priesthood or for the law. He still cherishes the hope that he can provide for those who have left home to seek employment, but it more often happens that the emigré, who is anxious to keep in touch with his kin in the country, sends home an allowance for the old folk or for the elder brother who farms the patrimony. There has been only a slight decrease in the number of farms since 1871 but, whilst the total rural population has increased by some 29 per cent., the agricultural population has increased by only 14 per cent. There have always been tanning, saw-milling and butter manufacture in the countryside, but of late these have expanded as French Canadians have turned their attention and their surplus capital to small industries, which in most cases now employ labour previously occupied on or around the farms. Since 1901, the numbers of agricultural employees per 1,000 male employees in Quebec Province⁹ has dropped from 382 to 225 (in 1931), largely owing to the outflow of farm workers to the towns and especially to the cities.

There are five regions to consider in addition to Montreal and Quebec City.

(a) In New Brunswick, about one-third of the population is French; Moncton is the largest “French” town and has a mixed population. At the head of the Bay of Fundy is a fertile agricultural region and further north dairying and pig rearing are supplemented by lumbering and fishing: Campbelltown is the centre. In Moncton, especially, many are employed by the railroad which links the isolated settlements along the southern bank of the St. Lawrence River. To the west,

⁹ E. C. Hughes, *op. cit.*, p. 22.

Carboniferous and Silurian formations yield poor soils and are chiefly forested by white pine and spruce, which are cut and used in the scattered saw-mills, and provide work for the part-time farmers of the area.

(b) On the north bank, the inhospitability of the narrow plain is heightened by the barren pre-Cambrian shield which rises to over 1,000 ft. within a few miles of the river and prohibits settlement over 77 per cent. of the area of Quebec Province. Yet where settlements are found the concentration of population is high. In 650 miles man has created only ten, well separated parishes at the base of the cliffs; in some of them the density reaches 30 per square mile and they form close communities with distinctive social lives. The river is the usual highway and internal transport is exceedingly difficult. The population is over 80 per cent. French and is characterised by the seasonal migration of woodcutters to the northern forests. The provincial government of Quebec has stimulated emigration to undeveloped areas by providing grants towards clearing costs to groups led by Roman Catholic priests and others, who often have acted as the official colonising agents of the government. Thus the government has been able to promote many group settlements in which the way of life of the older plain settlements can be perpetuated in entirely different conditions of climate and soil.¹⁰ Whether these settlements will prove successful in the long run will depend more upon the characters of their individual members than upon the lay and spiritual leadership of the official agents who are determined to keep alive the French language and the supremacy of the Roman Catholic Church in these 'new territories.'

(c) On the coastal fringe from Gaspé to Rivière du Loup, it is difficult for the farmer to eke out any living; the rugged Notre Dame and Schickshock Mountains do not encourage settlement. Fruit and vegetables find markets in the cities but farmsteads are small and most men live by combining fishing with farming and by working in lumber camps and saw mills.¹¹ The distance between settlements is less than on the northern bank so that social intercourse, whilst still difficult, is not so infrequent: near Rivière du Loup the population density in the settlements reaches as much as 75 per square mile. To the south and west the plain widens and becomes more prosperous; churches and convents are larger and more frequent. The city attraction also becomes stronger; many of the girls seek work as domestic servants and shop assistants in Montreal. Only a modern intensive type of farming is likely to hold the other young people; for here as well as in the towns, they are becoming increasingly aware of the inadequacy of their education for life in the commercial environment of modern Canada.

(d) In the Saguenay and Lake St. John district, the population is more dense and has grown to over 100,000 with the extensive develop-

¹⁰ For a detailed account of this colonisation see: A. R. M. Lower, *Settlement and Forest Frontiers in Eastern Canada*, Toronto, 1936, pp. 84-93.

¹¹ R. Blanchard, *L'Est du Canada Français*, vol. i, Montreal, 1935, pp. 89-96.

ment of the hydro-electricity and paper pulp industries, to which many French Canadians are being drawn, by higher and regular wages, from the hazardous livelihood of the small farms. The Church disapproves of the pulp factories despite the generous contributions made to religious organisations, because a new kind of discipline and a new philosophy of life alien to the traditions of French Canada have been introduced. It seems probable that this area will develop further as more roads penetrate : but it is bound to remain distant from the main streams of Quebec life.

(e) The most densely peopled agricultural area of French Canada lies between Quebec City and Montreal and mostly south of the St. Lawrence. The area was first colonised by the British but French workers were able, with the encouragement of their priests, to buy out the British, who moved westwards. The French are thus now dominant. It is an area of prosperous arable and mixed farming and extensive cattle and pig rearing according to the soils. The produce is treated in small factories around towns such as Sherbrooke (36,000) and Trois Rivières (42,000). Along the Ottawa River, dairying is highly organised and south of Montreal a specialised intensive market gardening and horticultural industry is developing as both dormitory and agricultural populations increase.

The chief areas of 'urban' development lie in the immediate neighbourhood of Montreal and of Quebec City, the leading industrial centres. The expansion of industry, aided by the wars, is the more surprising because there are no local supplies of primary raw materials but these can be easily imported from Nova Scotia and Pennsylvania. Between the cities, textiles and asbestos are important in the large towns and the rapid urban development is based also upon pulp mills and the processing of a variety of agricultural products. The large factories are generally bigger than in Ontario or in Canada as a whole, employing more people and using more invested capital per operative. Most of the capital is provided by American and British investors, whose officials manage the factories and occupy the 'white collar' positions on the floors. Only about 11 per cent. of the French Canadians employed in industry occupy such positions as compared with 43 per cent. of the British.¹² In Montreal, over 285,000¹³ work in nearly 4,000 factories : In Quebec (1934) some 21,000 were employed in over 300 factories, representing about 43 per cent. of the occupied population.¹⁴ Some 76 other towns (1934) had more than 100 factory workers.¹⁵ As elsewhere, the tendency is for the large cities to grow rapidly at the expense of the smaller towns ; the large towns are gaining population as the French Canadians invest in the traditional minor and ancillary industries. The consequent decline of rural industry has thrown the rural population more definitely on to farming for a livelihood and has promoted the wider practice of more modern methods of agriculture :

¹² E. C. Hughes, *op. cit.*, p. 204.

¹³ "Travelaide," *Montreal Visitor*, Montréal, 1950, p. 39.

¹⁴ R. Blanchard, *op. cit.*, vol. ii, p. 245.

¹⁵ E. C. Hughes, *op. cit.*, table 8, p. 27.

at the same time, the younger sons have been encouraged, if not obliged, to seek their luck in the factories of the towns as operatives and to accustom themselves to a new environment.

In Quebec City, the only walled city on the continent, 31 per cent. of the occupied persons are engaged in commerce¹⁶ for, since 1911, it has developed as an important passenger railhead and packet trade port; ample supplies of cheap electricity and a labour supply which is about 10 per cent. cheaper than in Ontario, encouraged industrial development. Blanchard maintains that the progress of this city marks "an act of faith by the French Canadians."¹⁷ It is also claimed that the French Canadian is a good, docile, well-disciplined, active and contented worker¹⁸ but perhaps this statement could be challenged nowadays. The tourist industry is second only to boots and shoes; the battlefields, the numerous churches, the *calèches*, the very narrow winding streets, the Château Frontenac with its memories of wartime conferences, attract thousands of visitors annually. Over 18 per cent. of the occupied population are concerned with civil administration, religious, cultural and military activities. Thus the city retains the atmosphere of a cathedral city but with its diverse industry is well placed to resist an economic crisis.

Montreal, Canada's chief port, and easily accessible from all parts by land or water, is also the second largest French-speaking city in the world. Both trans-continental railway networks and five out of the country's ten chartered banks have headquarters here but Montreal plays little part in the administration of Province or Dominion. Two wars have aided its industrialisation and given a great fillip to the expansion of the suburbs. Verdun increased from 25,000 to 67,000 in twenty years before 1941 and Outremont by 17,500 to 31,000 in the same period. The most recent estimate for the population of Greater Montreal is 1,400,000. Some 173,000 are employed in industry¹⁹ and a similar number in commerce, shops, offices and public utilities. Clothing is the largest single industry and is controlled by Jews. There has been a conscious zoning of industry. Montreal moves with more leisurely tempo than do Windsor and Hamilton but with greater speed than do Birmingham and Nottingham in Britain; there is a 'go-ahead' spirit which catches the casual visitor and makes him realise the power and importance of its commercial and industrial activities to Canada.

It remains the last stronghold of the British in French Canada. With their associates (north west Europeans of Nordic race) they number 36 per cent. of the city's population, but the proportion of British is steadily declining (it is now below 25 per cent.) as the high birth rate of the French increases their proportion. They now number over 840,000. Under an appearance of peace, there lingers a powerful

¹⁶ R. Blanchard, *op. cit.*, vol. ii, p. 251.

¹⁷ R. Blanchard, *op. cit.*, vol. ii, p. 292. See also, R. Blanchard, "Quebec: Esquisse de Géographie Urbaine"; (illustrated)—*Révue de Géographie Alpine*, vol. xxii, Grenoble, France, 1934, pp. 261-413.

¹⁸ R. Blanchard, *op. cit.*, vol. ii, p. 225.

¹⁹ *Canadian Year Book*, 1950 (figures relate to 1947), chap. xvii.

and secret contest which shows itself in subterranean conflicts between the major racial groups. There are few intellectual links, though the French are admitted to McGill University; young people are encouraged to segregate; mixed marriages are rare; the Board of Trade vies with the *Chambre de Commerce*; the Junior League with *La Ligue de la Jeunesse Féminine*. The French learn English but the English disdain to learn French; the English live mainly in the south-west and the French to the north, west, and south. In the racial outbreaks which sometimes occur, the Jews, of whom there are some 80,000, tend to be made scapegoats for the contending factions. Professor Hughes believes that "a good deal of honest mutual respect is felt between the English and the French of Quebec (Province) as a result of the long association on fairly good terms."²⁰ It is the English, however, who have introduced the new forms of economic enterprise which threaten the French mode of living and working; there is a conflict between the French industrial employee and the British "bosses," which has been incensed or aggravated, in the past, by the willingness of the *ouvrier* to accept unemployment relief adequate to ensure his standard of living instead of work. The man in the street still tends to regard the Englishman as something at which he should throw mud. The life of the lower paid English worker is far from comfortable in a city where he is forced to form a close community isolated both from the *ouvrier* and the British capitalist and 'white-collar' worker. In the city there are, therefore, three groups with their dissimilar outlooks.

The city administration tends to be in French hands and the larger commercial organisations are increasingly using the 'double management' system which gives opportunities to capable Frenchmen to assume executive posts in national organisations. Recently, French Canadians have been taking a more important part in industry and commerce and their experience will prove beneficial to those who wish to invest capital in businesses.

The British arrived first as conquerors and then as the representatives of a capitalistic society anxious to introduce economic and technical changes and to make profits. The French Canadian sought, but only timidly, new solutions to economic problems; he has scarcely tried to benefit from the discoveries of the British; his intellectual is generally a 'savant' rather than an 'expert.' Whilst the 'salon' remains in Montreal, he is being swept into a life frowned upon by his spiritual and intellectual leaders. The young Frenchman criticises the ill-adaptation of the educational system which hinders equal competition in industry and commerce. British interests, being nation-wide, bring great wealth to Montreal and manufacture for the whole Canadian market; French interests are mainly local. Thus expansion is limited and the likelihood is that only under further British or American leadership will the potentials of Quebec Province and Montreal be fully realised. Those Frenchmen who have penetrated the industrial 'ring' are exceptions; a co-ordinated use of all man-power available would

²⁰ E. C. Hughes, *op. cit.*, pp. 217-218.

assist expansion. The labour force of the province is 1,385,000²¹ and that the problem is being tackled can be seen from the movement of population within French Canada.

The most important feature of life in Eastern Canada is the movement of workers from a variety of rural occupations into urban industry. At the same time farming methods remain backward, especially beyond the environs of the larger towns; in the countryside the old life of the farmer goes on undisturbed by modern inventions. With this population movement there comes to the French Canadian a sharpening consciousness of cultural differences, a minority feeling, a disadvantage not of numbers but of power, wealth and influence. The older and smaller industries, mostly rural, are run by entrepreneurs; in the larger ones only the 'hands' are French but they are tied by sentiment, tradition, religion, culture and kinship to the surrounding countryside. It may well be that the future generations born in towns amongst industrial surroundings will develop new characteristics and manage to adapt themselves to new environments without losing those features which are peculiarly French Canadian.

English, Scots and other Europeans were unwilling or, in most cases, unable to settle in what was to them an alien province. Canada might have become two nations: that it did not do so is largely due to the conservatism and inertness engendered in a docile peasantry by the vigorous teachings of an active Church. Much of the racial animosity which underlies social conditions in Eastern Canada can be traced to the failure of French Canadians to adapt themselves to unfamiliar economic conditions. Beaten and surpassed by British and Americans with whom they found it difficult to have friendly commercial relations, they became jealous of their progress. When faced with the choice of work in a factory or an inadequate living on the patrimony, they have felt yet more bitter towards the British. However, there is no simple explanation of contemporary social conditions in Eastern Canada; geographic, historical, political, religious and social factors have combined inextricably. The solution of the problem lies in French hands alone, for they only can assume that condition of mind which will allow them to forget 'by-gones' and enable them to make their fullest contribution to the economic life of Canada by thoroughly preparing themselves and their children for it. This seems to suggest an overhaul of their educational system and a general broadening of the mind. In both rural and urban areas, the French Canadians have the advantage of a great numerical majority. The French must educate themselves for co-operation and encourage the British and other Canadians to co-operate similarly.²²

²¹ *Canadian Year Book*, 1950, chap. xix: fig. for March, 1949.

²² In *The Times* (London), May 15th, 1939, Dr. Leon Mercier Gonin, making a special contribution on French Canada to a Canadian supplement wrote: "*Nous existons comme groupement propre et nous sommes bien déterminés à le demeurer et à croître ainsi.*"

BATHURST

PORT OF THE GAMBIA RIVER

H. R. JARRETT*

THE story of the foundation of Bathurst dates back to the year 1807, when slave trading in the British Empire was forbidden by Act of Parliament, and British garrisons overseas, together with the Royal Navy, were given the onerous task of suppressing traffic in slaves. Since the British at that time were in possession of Goree, last captured from the French in 1804, strenuous efforts were made from that base to stop the slave trade which was being carried on by American and Spanish vessels on the river Gambia,¹ though the slave carriers often offered resistance, and severe casualties were suffered on both sides.

Such was the state of affairs in 1814, when the Treaty of Paris returned Goree and St. Louis to France, while recognising British sovereignty along the banks of the Gambia river.² These arrangements, ratified by the Vienna Settlement of 1815, left the British without a military base from which to conduct operations against the slave trade, and so Sir Charles McCarthy the first Governor of the United West African Settlements, recommended that James island,³ or some other suitable place in the Gambia, should be occupied as a military post to be used as a base for the suppression of the traffic in slaves. It was found, however, that the fortifications on James island had been so thoroughly demolished by the French (who had captured the island five times during the wars, the last occasion being in 1779) that it was impracticable to rebuild them; so on April 23rd, 1816, Captain Grant of the African Corps entered into a treaty with the King (or Chief) of Kombo for the cession of Banjola island to Britain (Fig. 1). The island was re-named "St. Mary's Island," and the base which was established there was named "Leopold" but this name was soon afterwards changed by Sir Charles McCarthy to "Bathurst" after the contemporary Secretary of State for the Colonies. A military post was established in 1817 at Banyan point (now called Half Die) which was the part of the island best situated for commanding the mouth of the river owing to the narrowing of the estuary between Banyan point and Barra point on the north bank. A civil settlement rapidly grew up alongside the military one. Natives came in from nearby areas to find work in the new town, mission stations were set up, and British and African merchants who preferred British to French rule moved in to

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¹*The Gambia*, Government Printer, Bathurst, (N.D.), p. 8.

²The French, however, retained possession of Albrede (see Fig. 1) until 1857.

³A small island in the main river 17 miles above Bathurst, upon which a fort had been first built by the "Company of Adventurers of London trading in Africa," chartered in 1618 by Charles I. Ever since that time Fort James had played a prominent part in the history of the Gambia.

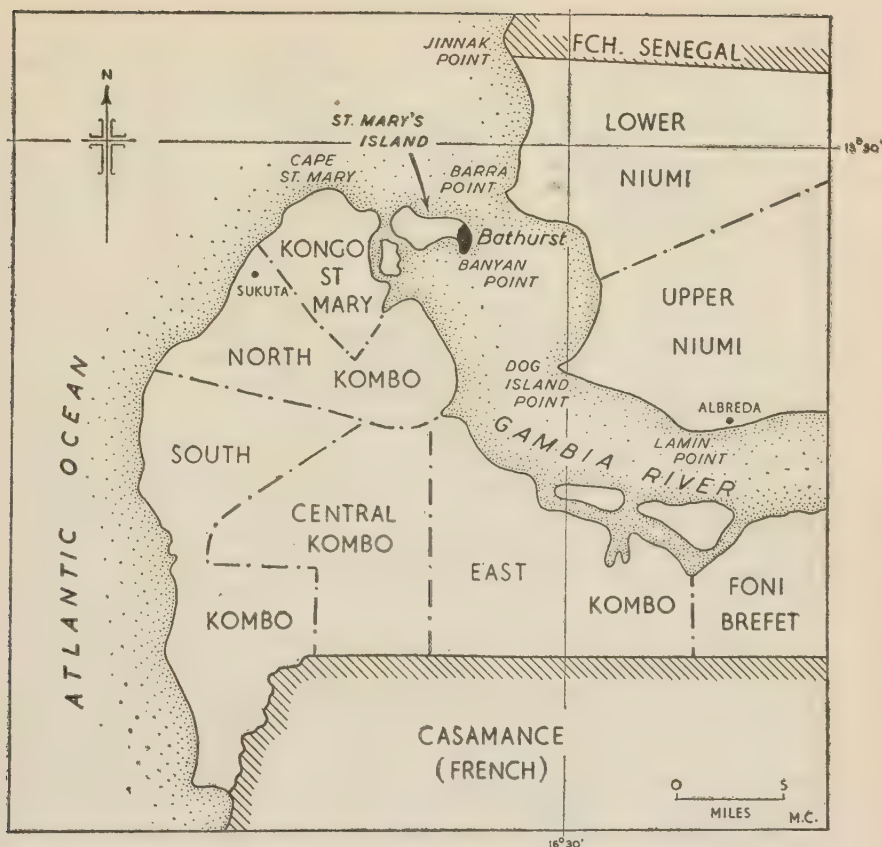


Fig. 1.—St. Mary's Island and adjacent territories.

Bathurst from Goree where they had settled during the period of British occupation. The town had, therefore, a good start, and as early as 1818 the civil population outnumbered the military. By that year the total population, including the garrison, numbered 600 ; in 1819 it amounted to 700, excluding the garrison ; and by 1826 there were 1,800 civilians, including 30 Europeans.⁴ Discharged soldiers of West Indian regiments and some liberated African slaves were settled—some on St. Mary's island and some on land acquired for the purpose in Kombo St. Mary.

We may now examine more closely the geographical setting of Bathurst, which was strategically well placed. Between Banyan point and Barra point the river narrows in width to two miles ; downstream it rapidly widens to ten miles between Jinnak point and Cape St. Mary, while upstream it again broadens into a kind of "pool," seven miles broad (Fig. 1). In other respects, from a purely physical standpoint, the spot enjoys considerable advantages for the siting of the Colony's chief port. Strategically it has a protected approach thanks to a

⁴ J. M. Gray, *A History of the Gambia*, Cambridge, 1940, p. 306.

constricted and zigzag channel of approach which vessels of any size must use, a bar at the entrance to this channel giving additional protection to-day as ships drawing more than 26 ft. of water cannot cross it at low tide;⁵ the waters of the harbour are sheltered from the open waters of the ocean; and while it is reasonably near the open sea it is sufficiently inland to have an extended hinterland. It suffers from the disability of a gently shelving coast, but so do most places on the West African littoral.

When all this has been said, however, it remains true that in all other respects the spot chosen for the capital was a thoroughly unsuitable one. The old Banjola island was a low, nearly deserted sandbank, " . . . no more than a barren sandbank, which was largely under water during the rainy season,"⁶ occupied in 1783 by "a few straggling natives" who were said to be thoroughly indolent subjects of the King of Barra,⁷ and who had simply fled there for shelter, being men of bad character. The sandbank was malarious and altogether most unhealthy and early in the history of the military post established on Banyan point it was found necessary to replace the European troops by Africans and West Indians, because of the high mortality rate among the Europeans. The two problems of drainage and ill-health thus arising have defied solution to the present day.

One may be tempted to wonder, at this point, whether some other more favourable site for the chief port and capital of the Gambia could not be found. Fig. 2 shows that what might be termed in a broad sense the "St. Mary Peninsula" comprises several distinctive elements.⁸ The east coast is composed of mangrove swamps which extend some distance inland and are consistently and understandably avoided by settlement of any kind. The north coast consists of a very narrow swamp-free belt, which is actually composed of a series of sand ridges, backed immediately to the south by the mangrove swamps and much too narrow and exposed to offer any suitable site for a settlement of the type we have here in mind. It will be seen that the only part of this sandy area which broadens out at all is the part upon which Bathurst actually stands. Finally, although it might appear from the map that the western coast including Cape St. Mary might offer some suitable choice of sites, this is not the case for two reasons: firstly, it has no sheltered bay, which means that it is open to the full force of the Atlantic waves, and secondly, it is composed of ironstone cliffs, highest near Cape St. Mary, and fronted by a shallow wave-cut platform—the whole physical environment thus being quite unsuitable for the siting of a major port. So we are almost persuaded to be convinced by the inhabitant of Bathurst who argues that "of all the towns of the colony past and present Bathurst alone has stood the test of time for 130

⁵ *Oxford Survey of the British Empire*, vol. 3, *Africa*, Oxford, 1914, p. 382.

⁶ Gray, *op. cit.*, p. 307.

⁷ *Development and Welfare in the Gambia*, Bathurst, 1943, ch. xvii.

⁸ Since it includes Cape St. Mary, Kombo St. Mary, and St. Mary's Island. The term is original. Fig. 2 is taken from Sheet No. 10 of the 1 : 50,000 maps of the Gambia published by the Directorate of Colonial Surveys, Teddington.

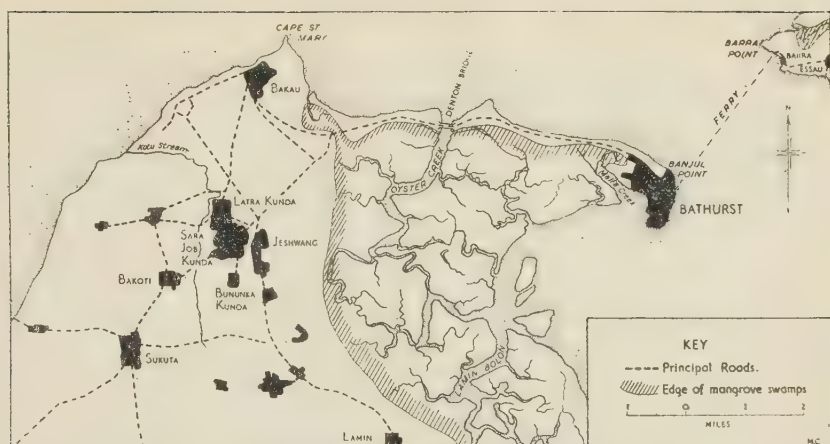


Fig. 2.—The St. Mary Peninsula.

years ; indisputable proof of the sagacity and foresight of the pioneers who chose it as the capital and seat of government.”⁹

It should perhaps briefly be mentioned that the climate of Bathurst is similar to that generally experienced in the Sudan. A dry season lasting from November until May alternates with a most uncomfortable and unhealthy rainy season.

Before turning to an examination of the town itself we might consider the population of Bathurst which has grown rapidly throughout the present century as the following figures illustrate :—

			Total	African	Non-African
1911	..	..	7,700	7,470	230
1921	..	..	9,227	8,962	265
1931	..	..	14,370	14,185	185
1944	..	..	21,152	20,278	874

The most recent census was taken in October, 1944, when the population of 21,152 was made up in this way.

RACE OR NATIONALITY¹⁰

1. NON-AFRICAN

British	..	..	..	..	..	49
French	..	..	..	..	..	30
Other Europeans	..	..	..	..	..	22
Syrian	..	..	..	..	..	173
						<hr/> 274

2. AFRICAN

Joloff	..	..	..	..	..	10,130
Mandingo	..	..	..	..	..	2,412
Aku	..	..	..	..	..	2,564
Fula	..	..	..	..	..	1,063
Jola	..	..	..	..	..	1,710
Serrere	..	..	..	..	..	1,075
Others	..	..	..	..	..	1,924
						<hr/> 20,878
						<hr/> 21,152

⁹ *Report on Remedial Measures to deal with Overcrowding in Bathurst*, Bathurst, 1946, p. 18.

¹⁰ This heading, together with the table, are taken from the *Report of the Census Commissioner for Bathurst*, 1944, Bathurst, 1945, p. 5.

The preponderance of the Joloffs is most marked, though this is by no means characteristic of the Gambia as a whole.¹¹ Most of the Africans live in compounds, surrounded by crinting fences,¹² and a plan of a typical compound known to the writer is given in Fig. 3. It will be clear that such a luxury as "privacy" hardly exists for the average African. The non-Africans other than British are chiefly engaged in

(Measurements approx.)

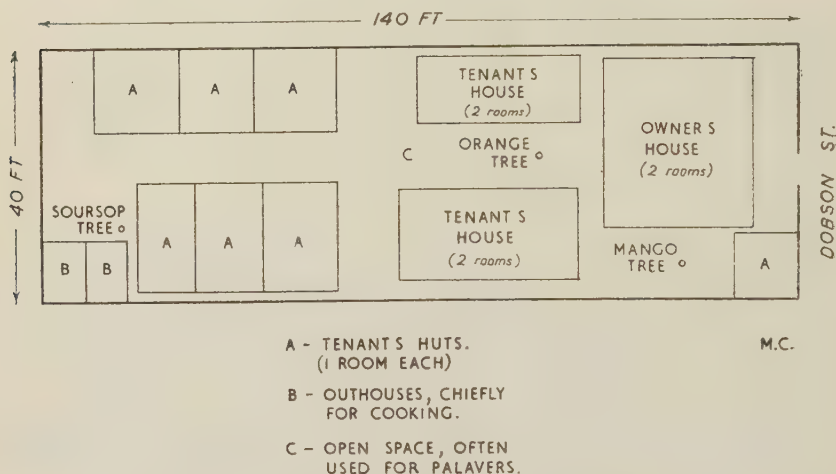


Fig. 3.—A typical Bathurst compound.

various kinds of trading, while the British are chiefly Government officials, missionaries and traders, who, with a very few exceptions, are not permanent residents. They live in Bathurst for about 18 months, as a general rule, and then spend six months away from the Gambia on furlough. The French tend to be rather more permanent, and the Syrians still more so. This raises the interesting question whether Europeans can ever attempt more than this "nomadic" type of settlement. In this connection the observations of Derwent Whittlesey on Dakar are apposite.¹³ Professor Whittlesey has found a remarkable change in the "psychological climate" of Dakar since the War: "The European population has a more settled look than would have been believed possible for an African station before the war." Whether this "more settled look" can be permanent remains to be seen, though many think that it can. On the other hand Dakar is built on a "breezy peninsula" which Bathurst certainly is not. The present writer would argue that Bathurst is situated near the northern limit of an unfavourable psychological climate (to use the term suggested) and Dakar near the southern limit of a more favourable one. It would follow, then, that there are probably a few Europeans who can live permanently in Bathurst but that most cannot: this is borne out by the writer's

¹¹ "The Gambia," *Colonial Annual Report*, 1947, p. 6.

¹² Crinting fencing is made from interwoven strips of split bamboo, chiefly by the Kunyadi from the interior.

¹³ "Dakar Revisited," *Geogr. Review*, vol. 38, 1948, pp. 626-632.

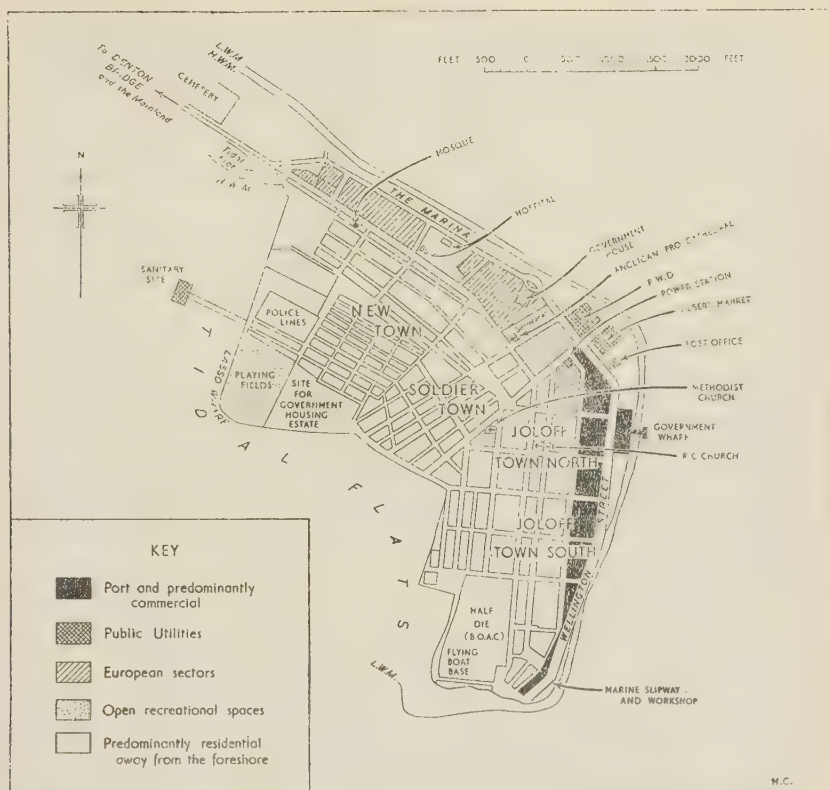


Fig. 4.—Functional areas in Bathurst.

experience. These remarks are not intended to refer to the whole of the Gambia, for many think that the climate up river is more favourable than it is in Bathurst.

It has already been hinted that the most important function of Bathurst is to act as the port of the Gambia. Bathurst has undoubtedly suffered from the narrow political confines of the Gambia, and has naturally fallen behind the newer port of Dakar in population and importance for this port has a broader political (and therefore economic) hinterland which includes "*des énormes travaux entrepris sur le Niger pour acclimater le coton et favoriser la production de la laine et des viandes.*"¹⁴ Despite this handicap however the importance of the harbour is such that a substantial part of the town is given over to commercial activities, while other individual shops and traders' yards are found in most districts. (Fig. 4).¹⁵ Apart from Government Wharf, consisting of a decking of ferro-concrete supported on steel and concrete piles, there are eleven smaller jetties southwards along the

¹⁴ C. Morazé, "Dakar," *Annales de Géographie*, 258, 1936, p. 614.

¹⁵ The plan of the town was taken from a map in the "Development and Welfare," 1943 Report, and the functional areas were inserted by the writer from personal observation.

waterfront, chiefly wooden structures owned by various trading firms.¹⁶ Each major commercial house faces its own wharf across Wellington Street. Unfortunately even Government Wharf has not sufficiently deep water to permit the berthing of vessels of over 2,000 tons, and a war-time plan for the construction of a deep-water port has had to be abandoned for lack of funds. Lighters, therefore, have to be used for the loading and unloading of larger ships.

The most important single export is, of course, the groundnut, of which 54,245 tons were exported from the Colony and the Protectorate in 1947 (chiefly from Bathurst). Since this trade is seasonal, all groundnuts being exported during the dry season December–May, an added strain is thrown upon the port during these months. Other less important exports include palm kernels (1947 value £24,482), beeswax (£2,670), and hides and skins (£728). Almost the whole of the imports into the Gambia are handled at Bathurst, the most important in 1947 being cotton piece goods (value £651,000), kola nuts (£152,000), apparel (£56,000), petrol of various grades and flour (£42,000 each).¹⁷

The following table¹⁸ showing the chief occupations followed by the inhabitants makes curious reading.

<i>Occupation</i>	<i>No. of Workers</i>
1. No Occupation	7,375
2. Miscellaneous	3,217
3. School Children	3,060
4. Traders	1,216
5. Domestic Servants	985
6. Carpenters	756
7. Clerks	736
8. Engineering (Fitters, Mechanics, etc.) ..	435
9. Tailors	335
10. Laundresses	321
11. Sailors	316
12. Masons	295
13. Drivers	219
14. Commercial (Merchants, Shopkeepers, etc.)	204
15. Cooks	198
16. Teachers	198
17. Gold and Silversmiths	196

Other occupations listed include bakers, bootmakers and leather-workers, blacksmiths, butchers, farmers, fishermen, nurses, painters, seamstresses and shipwrights.

The large "No Occupation" group probably did not include many employable but actually unemployed persons, for there was plenty of work to be had in Bathurst in 1944. For the most part this number was made up of housewives and small children (including many of school age not attending school). The large "Miscellaneous" group includes labourers of all descriptions, many being connected with the harbour. "The Government is the largest employer of labour, directly employing over 1,000 manual workers and 150 clerical staff. The former are engaged mainly by the Public Utilities Department and the

¹⁶ The most important of these firms are the United Africa Co., La Compagnie Française de l'Afrique Occidentale, Maurel Frères and V. A. Peterson, Ltd.

¹⁷ The figures are taken from the 1947 volume of *Colonial Annual Reports*, London, H.M.S.O.

¹⁸ *Report of the Census Commissioner*, 1944, p. 6.

Medical and Health Services.”¹⁹ A few small groups such as Doctors and Ministers of Religion were also included in this category.

The educational importance of Bathurst is shewn by groups 3 and 16, and its commercial function by groups 4, 14, and to some extent, group 7. In the “Gold and Silversmiths,” No. 17, we have the nearest approach to an industrial group. Most of these smiths work in small independent businesses, producing ornaments, including filigree work, of various kinds. The work is not as good as is met with in some other parts of Africa.

Before conditions of life in Bathurst can be said to be satisfactory various problems arising from the geographical setting must be solved, one of the most urgent being that of drainage and sanitation. The part of St. Mary’s island upon which Bathurst stands consists essentially of two low sand dunes, respectively 6 ft. and 8 ft. high. Between them a swale, a troublesome depression, runs right through the middle of the town, and has, so far, defied all attempts made to drain it. Cement drains running down the middle of the more important streets constitute the only serious attempt so far made to drain away the flood waters of the rainy season, and they are totally inadequate for this purpose. Since they have practically no slope the water, instead of draining away, remains stagnant in them, and during high (spring) tides the drains fill up with water rather than carry it away. Much of the town is therefore more or less permanently flooded during the rainy season,²⁰ and it is not difficult to see why Professor Yorke, writing in 1937 in the *West African Review*, likened that part of St. Mary’s island to “a water-logged sponge, floating in a sea of its own excreta.” A recent Government report declares that “until Bathurst is removed from the water-logged island . . . it will continue to be a disgrace to the Colonial Empire”; and again refers to the population massed on the island of St. Mary as living “in one of the worst tropical slums in Africa.”

The urgency of the problem has long been recognised, and work has now begun on a permanent drainage scheme, including the reclamation of a mangrove swamp, thanks to help given by a grant from the Colonial Development and Welfare Fund.

Bound up with the questions of drainage and of the disposal of refuse, is the question of disease. Malaria-carrying mosquitoes breed freely in the open drains and elsewhere, and in the past there have been virulent outbreaks of yellow fever. The last attack was in 1934. Again, flies breed freely among decaying refuse, and are particularly troublesome during the “mango season” (May and early June). They act as carriers of dysentery. The casual attitude of so many inhabitants to hygienic matters makes any attempt to “clean up” the town almost impossible.

¹⁹ 1946 Annual Report, p. 9.

²⁰ There is even said to be good fishing in some streets! In August, 1948, 12·27 in. of rain were recorded in one day, and floods in consequence were over 20 in. deep in some areas. This is a record. *Crown Colonists*, Oct., 1948, p. 582.

The unhealthy nature of Bathurst is clearly brought out by the following statistics, based upon figures taken from the 1938 Annual Report.

Year	Births	Birth Rate per 1,000	Deaths	Death Rate per 1,000	Infant mortality per 1,000 babies registered
1934	351	24	422	30·7	265
1935	386	27	452	31·8	310·8
1936	357	25	431	30·5	369
1937	370	26·3	414	29·2	254·1
1938	421	30·2	363	25·6	184·1

It will be seen that the death rate was until 1938 in excess of the birth rate,²¹ while the infant mortality rate is depressingly high. The steep decline in this rate was very gratifying, but it is feared that it increased again during the war years, though the latest figures indicate a further downward trend, oscillating between 130 and 193 per thousand in 1944, 1945 and 1946, and falling to 120 only in 1947.²²

Other problems arise because the capital is an exotic growth, artificially planted and nurtured. Hence there is a great gulf between many of the townfolk and the people from the rest of Gambia. The 1944 Census shewed that of the 21,152 inhabitants, no more than 10,975 were Bathurst born, while, of the remainder, only 4,479 are given as coming from the Protectorate and 5,698 are listed as "non-Gambian." There is not only a political²³ but an ethnological divorce between the Gambia and its capital city, and the people concerned are very conscious of this, and in addition, as we have already seen, there is no homogeneity among the people of Bathurst themselves. They have no single tradition, nor any uniformity of race or language. Apart from the descendants of freed slaves and discharged soldiers referred to above, it is said that representatives of every ethnic group known in the Gambia live in the town, the Jollofs forming the largest single group. This makes a public and corporate spirit very difficult indeed to achieve.

Finally, there are difficulties arising from the rapid growth of the population so that, in view of the restricted area available for expansion, it is hardly surprising that the problem of overcrowding is to-day reckoned as one of the most important which Bathurst has to face. This overcrowding may be illustrated in a single sentence. In one small native compound containing three reasonably large houses with two rooms each, and five small huts of one room each, there were living during the war years no fewer than 60 people. A count taken during 1942 revealed that 10 per cent. of the total urban population slept where they could in the streets, and this 10 per cent. did not include

²¹ This might be partly accounted for by the existence of the hospital in Bathurst, to which many sick people come from many parts of the colony.

²² *Colonial Annual Reports*, 1946, p. 23; 1947, p. 21.

²³ St. Mary's island and the northern part of Kombo St. Mary constitute the "Colony," the rest of the Gambia the "Protectorate."

many who undoubtedly slept in the open compounds. In the face of such figures the proposed Government Housing Scheme (see Fig. 4) is admittedly most inadequate, yet the stark fact remains that, with the exception of the McCarthy Square and Lasso Wharf Playing Fields, all available land on the "Half Die Promontory" is already used for building. There is no room for further expansion.

Many attempts have been made to find solutions to the difficulties here outlined, but since a recapitulation of still-born schemes may be tedious they are not described in this article. Mention may be made, however, of the start which has been made with the help of a grant from the Colonial Development and Welfare Fund upon the overdue improving of the drainage system,²⁴ and also, with the help of a further grant from the same fund, of the scheme now being undertaken to drain 3½ sq. miles of malarial marsh on St. Mary's island to provide additional housing accommodation.²⁵ While these schemes may be in themselves good, the writer feels that it is a mistake to repeat the problems posed 130 years ago by settling people again on low-lying ground formerly swamp, and would urge the separation of the town into two component parts—port and capital. Clearly, the port cannot be moved, neither can most of the people connected with it, but tremendous relief would be given to the overcrowded promontory if the administrative centre could be moved into the drier and more healthy Kombo. This solution has actually been suggested, but rejected on the score of expense; yet it seems unfortunate that the grant referred to could not have been used in implementing a scheme which could go far towards solving the problems which have troubled the town for so long.

²⁴ 1947 Annual Report, pp. 4 and 22.

²⁵ *The Crown Colonist*, April, 1949, p. 205. The exact locality is not given.

LIVINGSTONE'S AFRICA AND FUTURE DEVELOPMENT *

F. DEBENHAM

MEASURED by present-day political boundaries "Livingstone's Africa" means the whole of British Bechuanaland, the greater part of Northern Rhodesia, and all Nyasaland. Curiously enough it does not include Southern Rhodesia, since Dr. Livingstone's three traverses of the Zambesi river were mainly on the north side. The only journeys he made outside these three territories were those in the Manyuema district of the Belgian Congo, a few in Tanganyika Territory, and the prolonged stay in Portuguese East Africa on the Zambesi.

* A summary version of the lecture given by Professor Debenham to the Spring Conference of the Association at Hull, on 30th March, 1951.

We are therefore concerned with the general appearance and the future prospects of the British-controlled territories of Bechuanaland Protectorate, Northern Rhodesia and Nyasaland. Except for a small part of Nyasaland all this country is part of the great African plateau and is rarely below 3,000 ft. In climate it varies, mainly as to rainfall, though there can be very severe frosts in the south-west of Bechuanaland Protectorate and naturally very severe heat can be met with along the Zambesi and its lower tributaries. The rainfall may be as low as a mean annual of 7 in. in the south-west of Bechuanaland Protectorate and up to 60 in. in the highlands of the more northern areas. Because of these variations in climate, and also because of differences in political status, we must take the territories one by one.

The Bechuanaland Protectorate has a most peculiar political setting, in that the Protectorate might under certain conditions be handed over to a self-governing Dominion. The uncertainty on this point has been a very great hindrance to development for the past forty years, and it still is a barrier to full planning. Almost everywhere over this vast country there is a covering of the fine yellow Kalahari sand, because of which there are hardly any rivers of any kind except in the north-west corner. The native population is collected in large reserves mainly on the eastern half of the territory, leaving two very large areas of Crown Lands with hardly any population since there is no surface water. It is these two areas which have a certain promise for large-scale ranching.

It is important to realise that small-scale ranching and private ownership, even if it were permitted in a Protectorate, might be the most harmful of methods of development. The first provision of water-points for cattle is in itself a matter for large capital expenditure, but this alone would not make ranching a successful feature. In that light and any undue over-stocking even for a few weeks could begin a dust-bowl and serious erosion. Consequently there will be the added expense of fencing so that the pastures can be controlled, the stock being moved from one large paddock to another the moment there are signs of undue cropping.

The natural grasses are excellent in some places and at least edible in others, but since the incidence of droughts is about one year in three, there must be other sources of fodder available. One of these will be hay, made in a good year, but naturally the feeding of hay over a very large area makes heavy demands on labour. Fortunately there is another source of adequate and even good fodder in the large proportion of browse shrubs. This dispensation of Providence in arid regions is not unusual. Only a few hundred miles south the great arid Karroo looks quite hopeless for stock but it has small shrubs of the saltbush type and grows not only wool but even mutton.

The two large areas of Crown Lands mentioned total some 60,000 square miles. If water can be found at reasonable depth all over the area, as it has already been found in the northern one-fifth, then the prospects of using this otherwise profitless land may come to fruition.

The north-west corner, comprising the great Okavango swamps, suffers from just the opposite extreme, namely, a superfluity of water. It is infested with tsetse-fly, which is a complete barrier to stock-raising, but it seems likely that a comprehensive survey now being undertaken will give hope of plans for irrigation which might ultimately render that corner of the Protectorate more valuable than all the rest put together.

There are two provisos, however, for success in either of these directions. One is that communications shall be improved, so that heavy goods such as foods can be taken to the markets in other territories, and the other is the attitude of the natives themselves, particularly that of the Batawana tribe who occupy the swamps of the Okavango. At present there is little incentive for them to produce crops beyond subsistence amount and the tribes have no experience whatever of irrigation even with the hoe, much less with mechanized equipment. For Bechuanaland Protectorate, therefore, we can only say that future development is mainly dependent upon large-scale projects, and we have recently had only too much cause to regard such projects with caution if not suspicion.

If we cross the Zambesi at the extreme north of Bechuanaland Protectorate we get into the Barotseland Province of Northern Rhodesia. The general features of this Province are not unlike those of the Okavango sector just mentioned. There is annual flooding, and where dense bush occurs there is tsetse-fly. Large areas, however, are fly-free, and the Barotse themselves are a much more progressive nation than the Batawana. Communications are the main difficulty, since, except by air, it takes anything from one to three weeks to get goods up from the railway at Livingstone to any part of Barotseland. We will ignore the mineral resources of the territory, which are considerable, and deal only with less expendable assets such as the soil and the rivers.

Northern Rhodesia is very well off for rivers—far more so than Southern Rhodesia. Barotseland, as we have seen, extends over a large part of the Upper Zambesi tributaries. Moving eastward, and still on the plateau, we have the great shallow depression of the Kafue Valley, the river of that name flowing nearly 900 miles through Northern Rhodesia. In its upper reaches there are several large swamps, which, though smaller, have a future similar to that of the Bangweulu Swamps to be mentioned later. When the river takes its pronounced turn towards the east it flows for 150 miles through a vast area of level grassed land known as the Kafue Flats. At present these Flats are the home of enormous herds of big game and comparatively small herds of native cattle. In certain circumstances irrigation may make parts of the region the setting for major agricultural projects. Moreover the river itself should at all times be navigable for cheap barge traffic down to the point where the railway crosses it. Below that bridge there is another important feature which will ultimately play its part in the development of the territory. This is at present a very inaccessible

gorge with cataracts falling through at least 1,500 ft. over a distance of about 10 or 12 miles. This will be the site for hydro-electric power projects in due course, since the Kafue has a discharge about one-sixth of that of the Zambesi itself. At present any power project on the Kafue is overshadowed by the more spectacular plan of a power project at the Kariba Gorge on the Zambesi itself, a project which would involve an artificial lake some 70 miles in length.

The railway, winding north from the Victoria Falls up to the Copper Belt on the boundary of the Belgian Congo, follows the divide so as to avoid excessive bridging. The white settlers therefore occupy parts of a zone along the railway. In places the soils are good, but naturally storage of water is difficult on the divide and but for the existence of an enormous number of local swamps, known as dambos, which arrest the water, agriculture would be severely limited by the lack of water. The native reserves which tend to be further down the slopes often have better soil but are too far from the railway to make cash crops a paying proposition except in years of shortage.

The Northern Province of the territory is largely the catchment area of the Chambeshi, which is really the ultimate source of the Congo. The soils are fair to good but its chief feature is the vast swamp of Bangweulu, comparable in size to, though smaller than, the far-famed Sudd region of the Upper Nile. On the southern side of the swamps there is a vast expanse of nearly 1,000,000 acres of grassed land similar to that of the Kafue Flats. It was across these dreary wastes that Dr. Livingstone struggled to his death in May 1873. Though they are bordered by tsetse-fly country there is reasonable prospect of these flats becoming cattle country, since they already contain enormous numbers of antelope of various kinds. In the swamp itself and the large lake at the north-west end the natives have themselves developed a flourishing fishing industry, which only needs better organisation for transport and marketing to become a major source of high protein food. Naturally with so much water and the flat land annually flooded, there is reason to hope for irrigation crops, such as rice and winter-wheat.

There remains the great Loangwa Valley, to the eastward, which is the southern extension of the Great Rift Valley which begins up in Palestine. It is at present unhealthy because of tsetse, and it has a higher gradient than the other rivers mentioned. Consequently its agricultural prospects are for a more distant future. It is, too, so far below the main road and railway route that transport will always be difficult.

Turning to Nyasaland, we have an entirely different picture. Instead of the somewhat arid aspect of the plains of the Kalahari, and the monotonous thin forest of the plateau in Northern Rhodesia, we have high mountains, deep valleys and a major lake whose area is more than one-quarter of the whole territory. Developments of any kind in Nyasaland are seriously restricted for two reasons. One is that the only outlet to markets is via a small railway taking goods across the Zambesi down to the port of Beira in Portuguese East Africa. The

second reason why development will be delayed is that as yet no mineral resources have been discovered to finance the pioneer stages. Nevertheless, the comparatively good rainfall, the lake itself as means of transport, and the very rich soils in certain areas point to an ultimate agricultural future. The country is comparatively thickly populated and on the whole the type of native is superior to those found in the other two territories. They have more initiative, are more willing to go in for cash crops, and display a certain eagerness for education and even co-operation, which are good signs. At present a very large proportion of the male population goes out of the territory to earn money in the mines of the Transvaal or on the farms of Southern Rhodesia. This trend of temporary emigration is an unfortunate one for the territory, but until some of the major projects planned are in full operation there is simply not enough work for them in their homeland. The existing developments have been mainly, but not entirely, in the hands of the settlers, and comprise tea on the delightful Shire highlands, tobacco on the drier plains round Lilongwe, and cotton, almost entirely native-grown, in the Lower Shire Valley.

SOME COMPARATIVE ASPECTS OF WORLD SEA FISHERIES

R. L. R. MORGAN*

The most cheaply produced form of protein food, fish is an important element in world food supply. Present indications are that world production and consumption of fish and fish products will rise steadily in the coming years. The most marked increase will, of course occur in areas where nutritional values are low or unbalanced, and where the full potential output of the fishery resources is still far from achieved. Such areas are mainly in Asia, Africa, and S. America.

Where potential resources allow, fish production can be expanded much more rapidly than agricultural production. This characteristic is most marked in backward areas. Fishermen are often conservative, but rarely as conservative as primitive land-bound peasantry. Further, the adoption of improved fishing techniques gives an immediate and obvious advantage, whereas there may be a substantial time lag before the benefits of superior farming techniques become apparent. Above all, the sea is free and open to all with the ability to use it. Land, on the contrary, especially in densely populated countries

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relying on subsistence agriculture, is in the hands of people who may be extremely difficult to persuade to change their traditional methods. Social and religious factors often further complicate the problem, notably in Asiatic countries.

Future developments cannot be discussed in detail in this paper. It is proposed here to deal with the necessary preliminary to such a discussion : a brief comparative evaluation of the present situation in world fishing industries. To attempt this, answers are required for the following broad questions for each region :—

1. What is the present production of the region ?
2. What is the "intensity" of exploitation of its sea resources ?
3. What is the importance of its fishing industry to its food supply and its total economy ?
4. What is the "efficiency" of the industry ?

These questions are easily posed, but not so easily answered. More precise definition of such terms as "intensity" and "efficiency" is obviously required. Further, even such apparently straightforward terms as "production" prove, on closer inspection, to be hedged round with difficulties and ambiguities. Is production to be measured in terms of weight ? But some fish are much more useful than others, some require far more effort to catch. Is value then the best criterion ? Monetary values, however, in the present world of partially closed economies, are often affected by factors connected only remotely with conditions in the industry. For instance, general inflationary tendencies in a country may raise its fish prices and hence the nominal value of its output as compared with other countries, while its output remains unchanged in quantity and quality. These and other points force one to the conclusion that, after all, total tonnage of fish landed "in the round" (i.e. before any form of processing) is the only feasible unit for broad comparative study, so long as its limitations are borne in mind. When a detailed analysis of the structure of the industry of a single country is required, then, of course, the production would be subdivided into numerous categories.

Figures of total production for many countries are still little more than shrewd guesses, in the absence of adequate organisation for checking the landings ; this is naturally most marked in countries, such as several in Asia, where the industry is highly decentralised, and landing takes place in very many small villages. With some countries there is also considerable delay in general publication of figures. Different countries, also, have different methods of calculating their totals. For example, a creature statistically regarded as a fish in one country may not be so regarded in another. The following table, however, is of sufficient accuracy to convey the degrees of importance of the industries of the various countries. (Countries are used as the units for comparative study in this paper. Further subdivision into regions is, of course, necessary for more detailed analysis, though this is often difficult because of the absence of regional statistics in many countries.)

ANNUAL PRODUCTION OF SEA FISH
BY SOME REPRESENTATIVE COUNTRIES

Weight landed, in thousands of metric tons, in 1947. (In some countries 1946 or 1948 statistics or estimates are used as the nearest available to 1947.)

<i>Europe</i>		● <i>Asia</i>	
Norway	1,205	Japan (new frontiers)	2,470
U.K.	1,010	India and Pakistan	700
Spain	590	*China	260
Iceland	475	*Indonesia	255
France	305	Philippines	180
Portugal	285	*Siam	150
Netherlands	250	Malaya	62
Denmark	205	Ceylon	25
Sweden	165	Hong Kong	16
Italy	130	British N. Borneo	6
Belgium	80		
Germany (1937)	480	<i>U.S.S.R.</i>	1,450
<i>Americas</i>		<i>Africa</i>	
U.S.A. (inc. S. Alaska) ..	1,935	Union of S. Africa	115
Canada	510	French Morocco	55
Newfoundland	280	Egypt	42
Chile	65		
Argentina	42	<i>Australasia</i>	
Peru	28	Australia	40
British W. Indies	12	New Zealand	32

*Takings of fresh water fisheries, not given in this table, are of particular importance in these countries, though accurate counts of them are not available.

The full implications of these figures cannot be discussed in a short paper, but certain facts are shown clearly, notably the marked predominance of the regions about the continental shelves in the temperate zones bordering the N. Atlantic and N. Pacific. Fish are most abundant where the basis of the food chain—the plankton population—is most dense. This is in the upper layer of the sea (where the sun's photo-synthetic influence is felt) in cool zones. These areas also have ocean currents which contribute to their plankton production by bringing in steady supplies of fresh nutrient salts. The shelves bring the sea bottom within the upper layer of dense plankton and so give rise to a large population of demersal fish (i.e. those, such as flatfish, which spend most of their time on the sea bed) in addition to the pelagic types which are found also in areas away from continental shelves.

In addition to supporting large numbers of fish, these northern shelves are adjacent to the world's most competent maritime nations. Their resources are thus fully exploited. Indeed, in some areas, especially the North Sea, the optimum rate of exploitation has already been passed, and unless further international steps are taken in limitation, they may suffer a drastic decline in yield. This would prove cumulative, for overfishing destroys not only present stocks but total breeding potential.

In warmer latitudes the sea fishery resources are less. Stocks of fish in the area are decidedly smaller, though there are more varieties. Lower production is also due to the less developed techniques.

Boats are usually of low radius of action, and without mechanical power for propulsion and operation of gear. Their output is much dependent on the vicissitudes of wind and sea. In many areas nets and lines operated from the shore are used, but these are generally wasteful in their use of labour. The introduction of more advanced methods is, however, gaining momentum. In British colonies, for example, Fishery Officers are being appointed charged with the improvement of techniques—at a rate not so fast as to disrupt the social structures of local fishing communities. Some tropical Asian countries, however, can be seen to have already a substantial total production, despite normally traditional methods, because of their dense population. This provides both a large demand and an abundant labour supply.

To make a comparative study of the fishing countries of the world, a broad system of classification is first required. Consideration of the various elements involved leads one to the following as a serviceable initial empirical classification. Most of the countries fall easily into one of these categories :—

- (a) Countries in temperate latitudes of the Northern Hemisphere, with a substantial output, having access to good resources, making intensive use of them by relatively efficient methods, and having a large part of their output available for export.
- (b) Countries otherwise similar to those of group (a) but having a population sufficient to consume all or most of their production internally.
- (c) Countries in areas of lower resources, but also using relatively efficient methods, and, because of the fairly low density of their population, able to supply most or all of their needs (and in some cases to export specialised varieties).
- (d) Countries situated in areas of the same lower order of resources as in group (c) but not using modern methods though nevertheless able to supply most or all of their demand, or even to export. Reasons for this may often lie in the large numbers of fishermen in proportion to the total population, or in low effective demand for fish in the country.
- (e) Countries similar to those of group (d) but where owing to high population in relation to resources, local supply of fish is inadequate. (This does not necessarily lead to any large import of fish, because nutritional standards are normally low in these countries.)

The bases of such a classification will become more evident as the questions initially mentioned are further discussed. Some characteristics of representative countries in each division are displayed in the accompanying diagram (Fig. 1). (Calculations were made from data relating to 1947 or the nearest available year).

One of the characteristics shown is “intensity” of exploitation of sea resources. While this criterion is easily understood in broad terms to mean the amount of fishing activity, the problem arose as to how to define it more precisely. Clearly it should be estimated in

CHARACTERISTICS OF REPRESENTATIVE COUNTRIES IN EACH TYPE OF FISHING ECONOMY

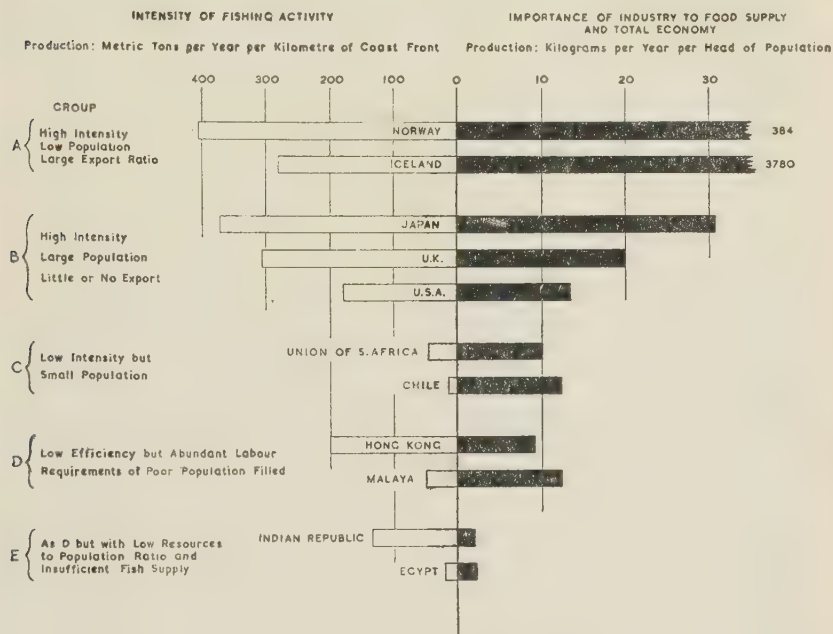


Fig. 1.

terms of production in relation to fishery resources. But how should fishery resources be assessed? Could it be in terms of the area of continental shelf to which the country has access at an economic cost? Definition of a general standard of economic cost raises many complexities. Some countries are much more enterprising than others, and can send their fishing craft on voyages of several thousand miles, fishing in distant waters, and still showing a profit. There is much overlapping of the areas of activity of different countries, and not all activity is on continental shelves.

The best general criterion of intensity of fishing activity is, therefore, considered to be the production of a country in relation to its coastal frontage. "Frontage" is used in preference to "coastline." For this purpose it is the overall front presented to the sea, not the total shoreline with all its indentations, that is required. If total shoreline were used, then countries such as Norway or Chile, with numerous fiords, rias, or other irregularities, would clearly be undervalued. The result of these indentations would be to lower their apparent intensity, whereas in fact an indented coastline, by providing many small harbours, tends to lead to a higher fishing activity.

For the calculation of the intensity figures shown, bays or other inlets of less than 100 kilometres across the mouth, or 50 kilometres penetration, are ignored, and the distance across the mouths taken as

normal coast front. Where they exceed either of the above two dimensions, the coast front is increased by an amount depending on their shape, depth of water, and so on. Similarly, islands with part or all of their coast within 100 kilometres of a mainland, or of other islands, have their coastline scaled down according to the relevant factors of shape, and so on. Small islands close inshore have, in most cases, none of their coastline included as coastal frontage.

The high production in relation to coast frontage of the countries bordering the northern continental shelves, and their contrast to the rest of the world, is clearly demonstrated in the diagram. India has a high intensity for a country outside this northern zone; this is attributable to its large demand and large labour supply for the industry. Density of population also accounts for the high figure for the Hong Kong territory. A further stimulus here has been the colony's long-standing importance as an entrepôt, with close contacts with the Chinese market, to which there is a substantial export of fish. The rest of South and South East Asia, however, has in general a decidedly lower intensity than India or Hong Kong. Egypt has a characteristically low African figure. The higher intensity of the Union of S. Africa is due mainly to the greater abundance of fish resulting from the cooling influence of the Benguela Current, together with the use of modern vessels and techniques. Chile's low intensity is characteristic of S. America. Many countries in Africa and S. America are, however, now showing a marked increase in intensity of fishing, and this trend should continue to gain momentum. Before the war these regions imported substantial quantities of fish from northern countries, such as Norway and Iceland, but war conditions drastically curtailed this source of supply. Consequent shortages stimulated local fishing industries and set them off on their present phase of expansion.

Another aspect for comparative study is the importance of the fishing industry of a country to its own food supply. There is very wide variation here. Some Asian countries have a per capita food consumption little above subsistence level, and of this low amount only a small proportion is accounted for by fish. On the other hand, in such countries as Norway, Iceland and Newfoundland, fish is both an important contribution to a good diet standard, and a very important export. A general guide to the importance of a country's industry as a source of its food, and in some cases exports, is the production in relation to its total population.

It is by this criterion that we can distinguish between the countries in group (a) and group (b) which were seen to be roughly comparable from the point of view of intensity of fishing activity along their coasts. In proportion to their populations, however, their output differs greatly. Iceland, with by far the highest ratio of any country, achieves an enormous per capita output. (See Fig. 1). With only about one-quarter of one per cent. of its land under cultivation, and very little manufacturing, the whole Icelandic economy is heavily dependent on fish. Yet the country maintains quite a high standard of

living. After domestic requirements of the small population have been met, practically the entire production still remains for export, and with this the country can purchase all its remaining needs. Newfoundland is another country with a very high ratio of production to population, though it is only about a third of that achieved by Iceland. It also exports practically all its output, though products from forest and mine make its total economy less dependent on fish. Norway is third in production/population ratio. The bulk of its production is exported; fish and fish products normally account for over a quarter of its exports.

The group (b) countries on the other hand have a much lower production/population ratio. Japan had a net fish export in pre-war years, but a very small one in proportion to its total output. Because of its deficiency of meat supplies for protein food it had the highest per head consumption of fish in the world—about 47 kgs. per year. 1947 consumption balanced production at about 30 kgs. per head. The U.S.A. has net imports, though these are small in proportion to the output. Domestic production roughly balances consumption. Britain is now markedly dependent on foreign sources to supplement her own production. In 1947 the weight of fish imported, or landed direct from foreign fishing craft, was 31 per cent. of the United Kingdom consumption, and seven times the exports.

Countries in the remaining groups do not usually have any substantial foreign trade in fish in proportion to their production. Group (c) countries—relatively efficient, of low intensity but of sparse population—approximately meet their consumption from home production. Their foreign trade in fish is not of much importance, though there may be specialised exports such as canned tuna from Chile and crawfish from South Africa.

Group (d) countries, though not normally having a higher production/population ratio than group (c) nevertheless may have net exports because of the low effective demand of their poor populations, and because there may be an effective demand from neighbouring countries with still lower output/population ratios. Before the difficulties of recent years in China, Hong Kong normally exported over 60 per cent. of its total production there. Group (e) countries, such as China and India, have a very low production/population ratio. They are the greatest potential market in the world, yet because of the low purchasing power of the population they cannot afford to import any substantial quantities of fish. India, indeed, has a small net export, despite its great need for more protein foods. Clearly it is the group (e) countries that offer the greatest scope for fishing development from their own bases, and as a market for surpluses of developing industries elsewhere.

Finally, there is the question of the comparative "efficiencies" of different countries. (This is, of course, not to be confused with the intensity. A country may make intensive use of the resources of the sea, yet use inefficient methods, while a country using efficient methods

may nevertheless have but a low intensity of fishing activity.) A general standard to cover every type of fishing can only be of approximate accuracy, for conditions and rates of catch for different branches of fishing vary greatly. The average productivity per fisherman, however, is a useful guide to comparative efficiency as between countries. Adequate data to calculate these figures are not available for many countries, but the following are fairly close estimates for some representative ones. They apply to workers wholly or mainly employed in fishing, and exclude those (of importance in some countries) who are engaged for the bulk of their time in other pursuits, such as farming. It should be noted, too, that only those actually engaged in catching fish, as crews of vessels, or on shore nets, traps, and so on, are included ; auxiliary workers are not. Figures are for 1938, as the most generally typical year for all countries.

Output per Fisherman per Year (Metric Tons)

Iceland	39	Norway	12.5
United Kingdom	24	Japan	5.5
United States	14	British West Indies..	0.8

Iceland and the United Kingdom have a high productivity per man because of the high capitalisation of their industries. Iceland's fleet is of sizeable steam craft and a larger number of smaller but more modern motor vessels. The British fleet is still largely of steam vessels. The higher productivity per man of Iceland is not in this case necessarily indicative of methods appreciably more efficient than the British. It is mainly accounted for by the fact that most of its fishing is done in its own waters, so that a greater proportion of effective fishing time is achieved than with British vessels going farther afield from their ports.

The American productivity per man is decidedly lower. This is an industry in which the Americans are not the technological leaders, save in some specialised branches. Norway has a lower figure than the United Kingdom because of the greater decentralisation of its industry along its highly indented coast, with smaller craft and simpler techniques. The U.S.A. and Norway have relatively few trawlers, relying mainly on lines, seine nets, and so on. The Norwegian figure given here may be somewhat undervalued, as the published Norwegian figures of the numbers "mainly engaged," from which it was calculated, do not specify the definition of "mainly" and may include many who devote a substantial time to farming.

Japan, though the greatest producer in the world, has a low output per fisherman. It has many large modern steam and oil craft, but the average productivity is lowered by the great numbers of more or less primitive fishermen. The abundance and cheapness of labour meant less incentive to the introduction of advanced techniques in coastal waters. Barely 1 in 5 Japanese fishing craft possessed engines in 1940. A considerable number of women are employed in fishing ; about 1 in 9 of the total in 1940.

Accurate data to calculate the productivity of other countries in Asia, Africa and South America are often lacking. Generally, however, the productivity per fisherman is very low as compared with Europe and North America, not only because of low efficiency, with backward methods, but because of the generally lower resources of the sea. Nearly all Asiatic countries appear to have productivities of between 1 and 3 metric tons per fisherman per annum. The above estimate for the British West Indies is even lower. This is not solely due to the easy going nature of the negro fisherman, for the sea here is particularly sparse in plankton, apart from the British Guiana and Trinidad area, where the mainland rivers bring down more nutrient salts.

Most of the group (d) and (e) countries are, however, exploiting their sea resources at well below optimum intensity (this being the intensity giving the maximum *sustained* production, without over-fishing). Therefore, improvements in their low efficiency should give rapid dividends, and it is amongst these countries that we may expect a large increase in output in the fairly near future.

Though productivity per fisherman is a useful criterion for comparative study, it would, of course, be an over-simplification to regard the sole aim in increasing the efficiencies of backward countries as being to increase this figure. The overall social efficiency must be considered. While the productivity of labour undoubtedly needs raising, it may not be possible or even economically advisable to raise it to British standards in countries lacking the means to purchase or produce expensive capital equipment. Where the chief resource is abundant labour, the most economically efficient methods may be those requiring more labour and less equipment than in Britain. Techniques must be adapted to the circumstances of each region.

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THE REPRESENTATION OF TRUE TO SCALE LINEAR VALUES ON MAP PROJECTIONS

W. G. V. BALCHIN*

THE impossibility of representing correctly a three dimensional spherical surface upon a two dimensional plane surface is well known. Distortion in some form or other is inevitable when the third dimension is eliminated. This distortion can be controlled in various ways so that certain qualities may be preserved albeit at the expense of others: the various ways and means of achieving different results form of course the fascinating, and for the geographer important, subject of map projection.

If we consider any element on the sphere we may regard it as being possessed of three fundamental qualities, which may be expressed by linear, angular, or areal values. Any single line will have a linear value, any two intersecting lines will possess an angular value, whilst any three intersecting lines will enclose an area hence producing an areal value.

Now on the projection we may preserve certain of these values as correct but not all at once. Thus we may arrange for areas on the plane surface to represent correctly corresponding areas on the sphere and if this be done the representation will be an equal-area (or equivalent) projection. Similarly we can arrange for angles to be shown correctly all over the plane representation and in this case the result will be an orthomorphic (or conformal) projection.

When we turn to the linear values, however, we discover that these cannot be correctly represented all over the plane surface, for if they were all areas and angles would, of necessity, also be correctly shown—and this, of course, is impossible. Hence only some selected lines can be correctly shown true to scale in any projection. It is, of course, customary to make certain parallels and/or meridians true to scale and these will vary with each different representation. In some projections the number of lines along which the scale is correct may be quite large, in others, perhaps only one line may be so regarded.

Clearly a knowledge of those lines along which the scale is correct is of value because it immediately enables an estimate to be made of the location and extent of distortion in either areal or angular values. Unfortunately no text book on the subject, as far as the writer is aware, treats the representation of linear values systematically although in all cases the graticules are carefully stated to be either orthomorphic or equivalent. It is of course easy for the student to learn that one or other, or neither, of these qualities is applicable to any particular

* Dr. Balchin is Lecturer in Geography at Kings' College, University of London.

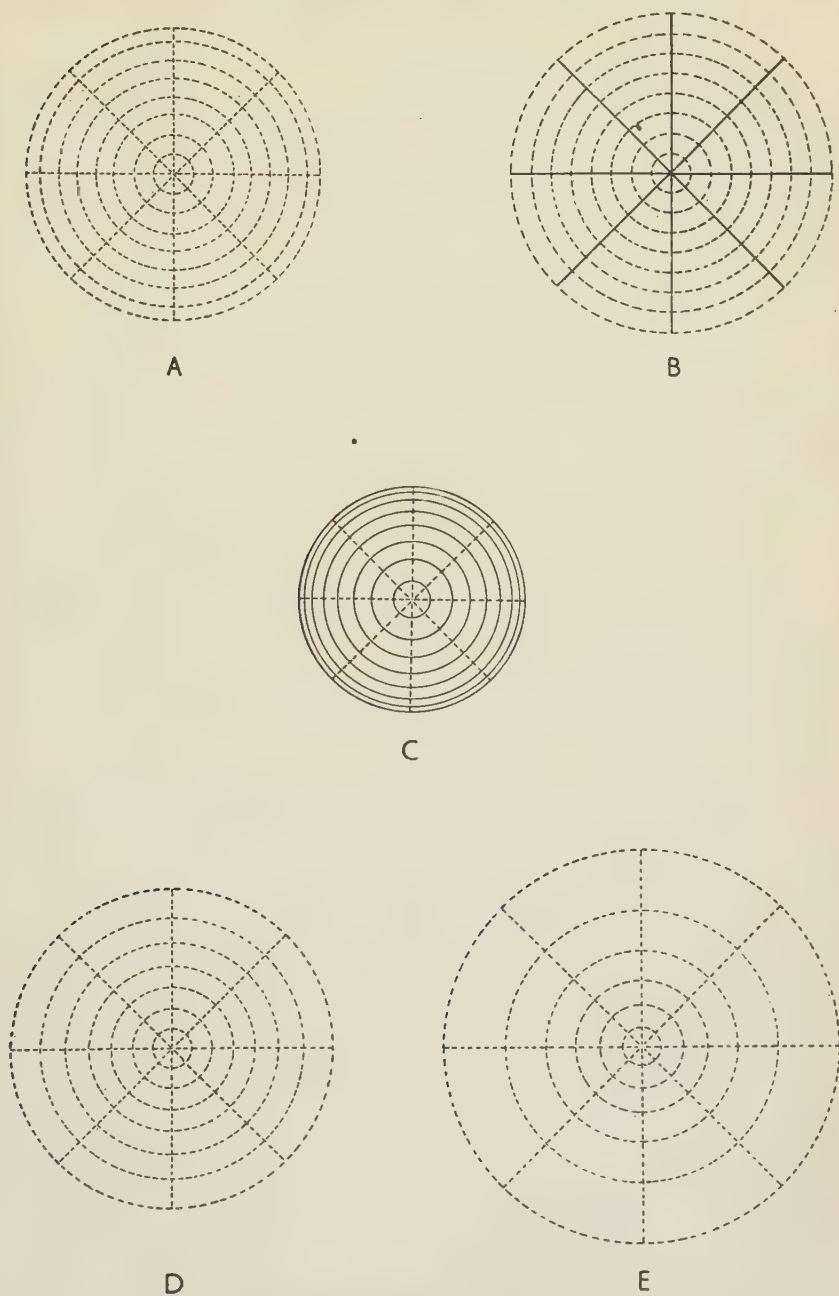


Fig. 1.—Comparative graticules of the simple Zenithal projections drawn on the same scale. Lines along which there is a true to scale representation are shown solid.

A : Equivalent (Equal-area). B : Equidistant. C : Orthographic.
D : Orthomorphic (Stereographic). E : Gnomonic.

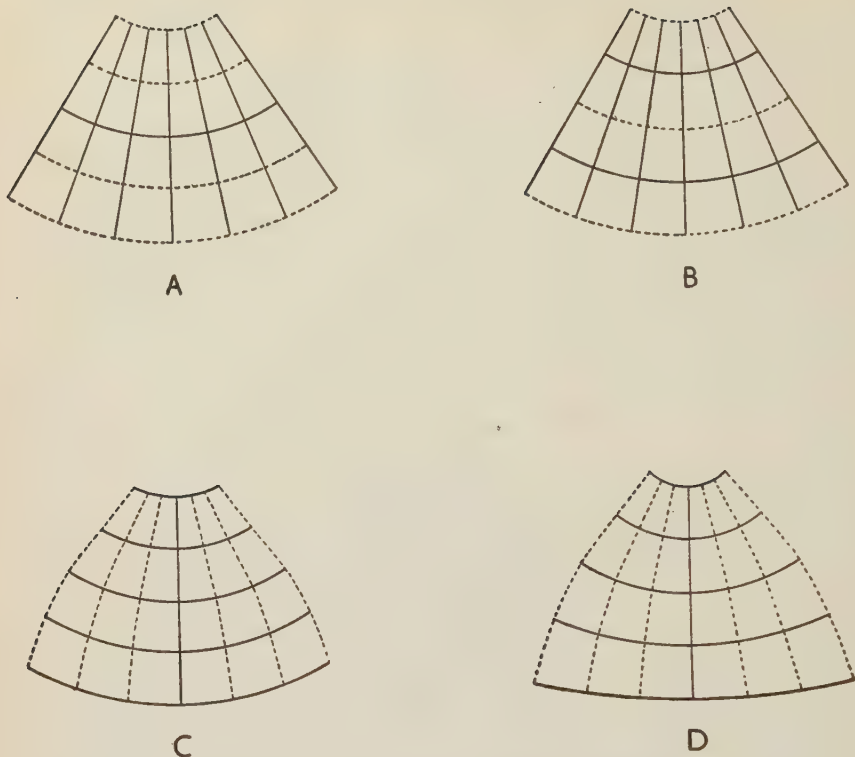


Fig. 2.—Comparative graticules of the simple Conical projections drawn on the same scale. Lines along which there is a true to scale representation are shown solid.

A : Conic with One Standard. B : Conic with Two Standards.
C : Bonne's D : Polyconic

projection but the quality of linear distortion is more elusive to master and has in the writer's experience been a source of much misunderstanding in both class and examination work. A simple step will, however, quickly clarify for students the relative accuracy of the representation of the linear values on any projection.

In the construction of a projection the lines of latitude and longitude are chosen to form the fundamental structural framework and one or more of these lines may in the first instance be made true to scale ; other lines may then emerge by virtue of the construction as being also true to scale. In teaching the various constructions it is submitted that complete clarification may be achieved by making a distinction between those lines along which there is a true to scale representation and those lines along which distortion occurs. It is the purpose of this note to suggest to teachers and authors of textbooks that both junior and advanced students would be greatly helped if this distinction were made. On the blackboard coloured chalks may be used. In a textbook thick lines may represent true to scale values and pecked lines incorrect linear values.

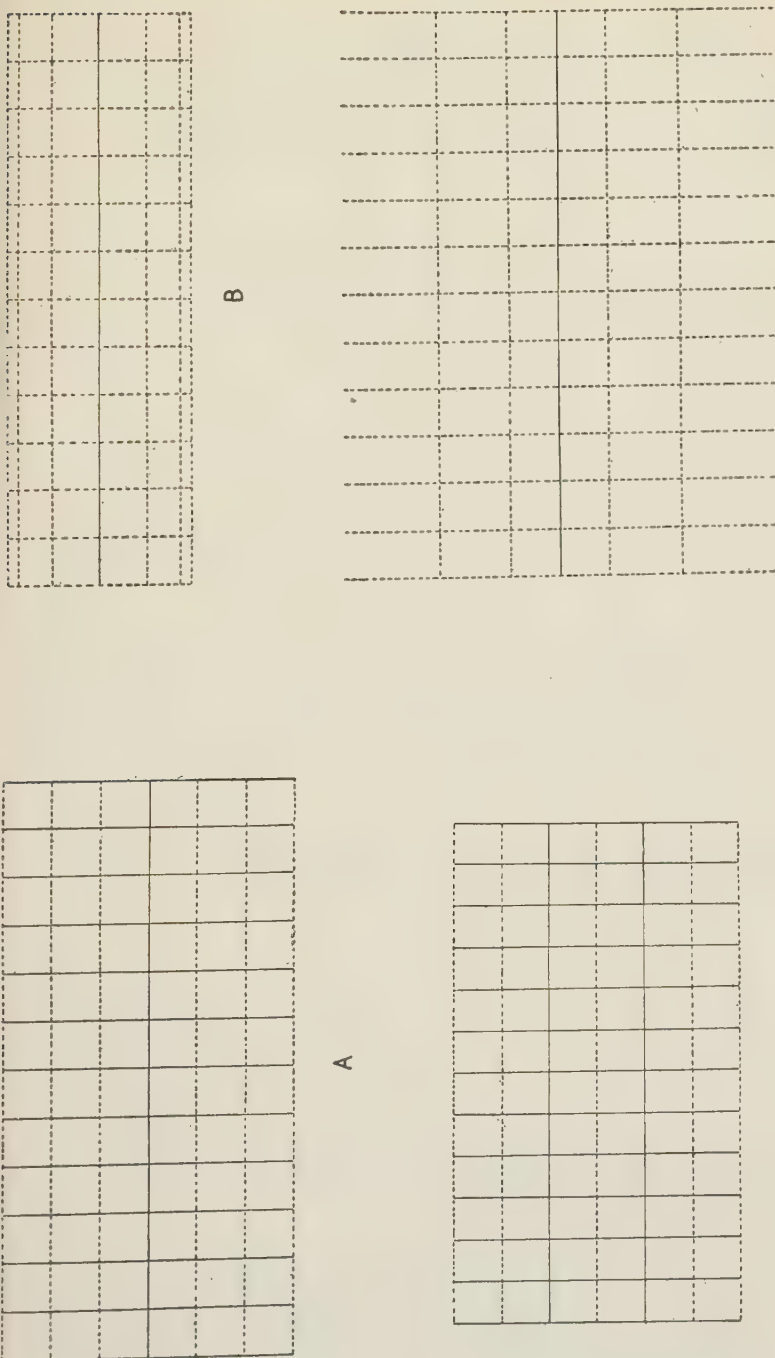


Fig. 3.—Comparative graticules of the simple Cylindrical projections drawn on the same scale. Lines along which there is a true to scale representation are shown solid.

A : *Plate Carrée*.

C : *Carte parallélogrammatique*.

B : Equivalent (Equal-area).

D : Orthomorphic (Mercator).

In order to illustrate the method and the result obtained some sketches of the more common graticules have been drawn. In the zenithal group we see that a correct representation of the parallels of latitude is associated with the orthographic projection, and a correct representation of the meridians of longitude is associated with the equidistant projection, but that in all other cases the linear values are everywhere distorted.

In the conical group the standard parallel or parallels will, of course, always be true to scale, but we note that in the simple conic with one and two standard parallels all the meridians are also true to scale. If these projections be made orthomorphic or equivalent, however, the true to scale quality vanishes from all the meridians. In the polyconic and Bonne's projections all the parallels and the central meridian emerge correctly represented.

In the cylindrical group we may have the equator and all the meridians correctly shown as in the simple cylindrical (*plate carrée*); but again, once the cylindrical becomes orthomorphic (Mercator) or equivalent only the equator may be regarded as true to scale and correctly represented. The *carte parallélogrammatique* projection, although little used, will give us two parallels and all the meridians true to scale.

Only a selection of the common projections are here given in the limited space available, but the idea can clearly be extended to conventional and other more complicated projections. The method has in the writer's experience, proved of considerable assistance in clarifying the general problem of linear distortion in map projection.

NEWSPAPERS IN THE GEOGRAPHY CLASS

J. HADDON*

IN an earlier issue of *Geography* the writer was privileged to give some details of an experiment in teaching technique. In this article we are less concerned with methods of presentation, which were of the usual type, than with the actual content of the lesson and of the geography curriculum. The experiment was conducted with the first form of a co-educational Grammar School, but it is hoped that this short description will be of particular interest to those who teach in Secondary Modern Schools.

The problem was to find a syllabus for the first year which would arouse interest or, in the few, maintain it. The class of eleven-year

* Mr. Haddon has been since 1947 geography master at Sidcot School, an independent Quaker school of rather more than 200 pupils. He contributed to the 1948 Volume of *Geography* (pp. 190-193) the article "An Experiment in Teaching Geography."

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. This second edition of the well-known sketch-map atlas has just appeared. It will be remembered that this atlas presents a selection of the maps in the Oxford Geographical Note-Books for Secondary Schools, each of which covers a particular area, but omits the exercises which are to be found in the separate books. Many of the maps have been altered or redrawn to make them more useful for their new purpose. The result is a summary of World Geography in map form.

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plus, thirty of them, was far from showing a preponderance of academically minded children and a strictly "Grammarians" approach would have been distinctly unsuitable. Previously, the year had been taken up by the study of a series of environments in the British Isles and in foreign countries, the object being to equip the child with a general idea of the contrasting conditions to be found in the world and their relationship to human activities. It was not felt, however, that much of value was being obtained from this course.

In the first place, most of the matter was factual and it was observed that very little of this was retained and the work had to be re-learned (not merely amplified) at a later stage. Secondly, it did not seem to make the children appreciate the worth-whileness of the subject and the vital part it plays in human affairs and without this feeling the subject is, to most children, dead. Thirdly, there was insufficient time to make sufficient studies to give an adequate picture. There were several other objections and one of them—the most important—the children were not particularly interested in the work.

This problem seemed an important one to study, not only in its particular context, but also in relation to teaching the subject generally, and especially with regard to the Secondary Modern School which presents the most vital problem the scholastic profession has to face. It was felt that if a general course could be found which would be of real educational value and would at the same time grip the wayward attention of this heterogeneous collection of youngsters, such a course might also be of value to those who teach the less academically-minded, but more leisured, majority who will find their way into the Secondary Modern School.

In order to have some basis on which to build, a study was made of the children's preferences and it was found, perhaps surprisingly, that the keenest general interest was in Current Affairs. The task then was to discover whether a whole year's course in geography could be founded on the basis of this interest. If this was possible, the advantages would be considerable, for the subject would be related immediately and intimately to a state of affairs which, in one way or another, affected every member of the class in a way he or she could readily appreciate, be it the absence of rice-pudding at dinner, or the presence of Uncle Bill in Germany.

It was decided to make the attempt, the course to be based entirely on day-to-day events with no attempt to lay down beforehand the syllabus to be covered, and with no more equipment than an atlas and notebook for each child and a regular supply of newspapers. Teacher took the *Times*.

In the first term the class followed with the keenest interest the events in Palestine which led up to the partition of the country, and they noted the geographical background, particularly with regard to the flow of oil from the nearby fields. They discussed the climatic and physiographical contrasts of Asia, with its interplay of nomadic and sedentary peoples, bringing in the importance of these countries to

the peoples of temperate climates and the vital interests of the latter in the present unrests of the Far East. They looked at the geography underlying the great Indo-Pakistan division, with a digression on the relationship of perennial irrigation and stable government and another on the relationship of employment in Bombay and unemployment in Lancashire. They learnt to correlate the age-old division of China into North and South with the Communist advance and looked at the interests of America and Great Britain in the struggle, while the shifting of the capitals of China assumed a new and deeper significance. In Europe, the geographical background to the partition of Germany was looked at and the political consequences discussed.

This was one term's work. To describe the ground covered since would take us beyond the scope of a short article, but it may be stated that at no time were we at a loss for a subject, although we exhausted the subject of Korea long before the newspapers did. On the other hand we spent far longer on the Schuman plan which served as an excellent introduction to a study of the distribution of coal and iron. Other interesting items in a varied list were the price of Australian wool, the Red River floods, and the Apartheid policy in South Africa. It has definitely been found, over the course of a year, that there is ample basis in contemporary events for an introductory course in geography and there seems no reason why this should not normally be the case.

It has been a pleasure to take this course, both because it keeps the teacher from the danger of being stereotyped and because the children have shown a most lively enthusiasm. The measure of its success is that children have come early to class to discuss some knotty point or would voluntarily supply pieces of news and ask how they fitted in. Moreover, the interest has continued into later stages.

In considering this course possible faults have been scrutinised and there are doubtless others which will come to light with further experience. The chief objection is possibly that the course tends to be "bitty." This is true to a certain extent, although it is surprising how the disparate elements can be made to hang together; but the children are not normally ready at this stage to follow out a logical development of a subject and it is much more important that they should realise that the subject "belongs" and to get some idea of the methods used.

With regard to this last point, the writer failed at first to give sufficient attention to the sheer mechanics of map-drawing, and now a considerable amount of time is given to this at a very early stage. This includes work on the Ordnance Survey Map which is really alien to the general course but is included because of its general usefulness and its interest to the children. The local one-inch map is used and this brings us to the final point.

For this course the world is our parish and there is little or no room for local studies. This does not mean that the local environment remains unmentioned for frequent use has been made of familiar examples and there are few topics in the world to-day which do not at

some point affect all localities. Yet no apology is intended. This article ends with what in some quarters will be stigmatised as heresy and will, it is to be hoped motivate letters to the Editor.

The writer believes, and this from experience and not by a rationalisation of a personal preference, that the local study is of small value to children beginning on the course of geography. Local study is the Omega, but cannot be the Alpha of the syllabus. To study adequately, intelligently, and fruitfully the region in which a person lives calls for a considerable previous training in the grammar and technique of geography and is a task for a more mature mind than is found in most eleven-year olds. It is so easy to produce most satisfactory looking results in local study, especially when the work is particularised as in the project method, that there is a tendency to judge the value of the work from what has gone down on paper instead of what has gone on the worker's mind; for one thing, the former is so much easier to assess. The writer believes that the broader horizons of the course described are more suited to the younger minds which are, yet, again and again brought back to the actualities of their own everyday life and environment, and that at the same time it provides a sound basis for the regional studies which are to come and the local study which is to crown them all.

CORRESPONDENCE

AN "OUTLOOK TOWER" AT DOMME, DORDOGNE*

There is a growing interest in local, civic, and regional museums which may not only initiate the 'tourist,' but may link a community through its own surroundings and activities to the wider world. In this connection readers of *Geography* may be interested to learn of the vicissitudes and future of the small "Outlook Tower" at Domme, Dordogne, which served as a German machine-gun post during the war and the Liberation. As described in *Geography*, Vol. 21, 1936 p. 226, this museum was founded by Paul Reclus who utilised the solid structure of a roofless windmill built on the forecourt of the ruined castle at Domme which commands the gorge and passage of the Dordogne not far from Sarlat. The mill-tower and its plot of land had

* The original 'Outlook Tower' was founded by Patrick Geddes in a building on the Castlehill, Edinburgh, whose lower storeys are of 17th century, or earlier, date with collections designed to portray Edinburgh in its regional and world setting. At present it is in process of reconstruction but the fine new *Camera Obscura* with its unrivalled prospects, and a small temporary collection devoted to the development of the city are open to visitors. When reconstruction has been completed and financial obligations have been met it is hoped to renew the entire series of collections.—Ed.

been presented for the purpose to the citizens of the hill-top *bastide* of Domme by Patrick Geddes, through his old friend, Reclus. Building out from the metre-thick walls, Reclus had constructed a new, octagonal room, eight metres across.

In this top room, with its views in all directions, were placed panoramas explained by legends with the corresponding topographic and 1/1 million maps. This room contained materials interpreting the landscapes, locality and region. In the small room immediately below was placed a collection of books on the region, the *Perigord Noir*. Below this are works upon the major products of the locality as found in other regions of the world: the crops of wheat, maize and tobacco and the timber, of which the inhabitants' lifelong knowledge forms their own key to world study. War, and the death of M. Reclus in 1941, inevitably arrested progress.

In May 1950, on the occasion of the visit by the peripatetic Congress or Annual Inter-University Excursion of French geographers, to which foreign correspondents were invited, I re-visited the *musée*. During the fighting in 1944, in which seventeen local men lost their lives, the collection had suffered. Yet the building is still sound. The fine relief model of the region (made for the museum by a citizen of Domme, a retired colonel of cavalry) is undamaged, the collection of pre-history is untouched, and many documents are still unspoiled. Local interest is still present and following the re-opening of the magnificently placed hotel, destroyed in the fighting and now handsomely rebuilt, tourists and summer-residents will shortly return. The time is ripe for the renewal of the Museum.

The interest and hopes of the French University geographers who saw the site of the Museum and learned of its purpose, was expressed in the vote given below:—

“ Les membres du Congrès Inter-universitaire Géographique français, réunis à Domme le 29 Mai, 1950,

Regrettant que le musée régional installé dans la tour du Moulin de Domme (Dordogne) n'ait pas rouvert ses portes depuis la libération,

Constatant que ce musée réalisait une tentative unique en son genre pour intéresser le public local et touristique à la fois au paysage, à l'activité des hommes et à l'histoire de la région,

Constatant d'autre part que ce musée avait attiré l'attention sympathique du monde savant international et était souvent cité en exemple à l'étranger,

Demande aux pouvoirs publics de mettre à l'étude sa réouverture et de prévoir les fonds nécessaires pour la reconstitution et son entretien.”

ARTHUR GEDDES

Department of Geography,
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GEOGRAPHICAL ASSOCIATION

INTERNATIONAL CONFERENCE OF TEACHERS OF GEOGRAPHY SHEFFIELD, JULY 20TH-AUGUST 7TH, 1951.

Plans for the first international conference of teachers of Geography to be held in Britain are now sufficiently advanced for the following provisional programme (which may be subject to some alteration) to be published.

- July 30th* : Formal Opening of Conference with speeches of welcome by Prof. Fleure, Prof. Wagner, and others.
Address by Prof. Dudley Stamp : "Geography in the education of the world citizen."
- July 31st* : Lectures by Prof. Rudmose Brown, D.Sc., and others, "The site of Sheffield", and "The geography of the local region."
Excursions to study the urban geography of Sheffield and visit to the headquarters of the Geographical Association.
- August 1st* : Long excursions followed by an evening address by Prof. Bowen : "Geography in relation to other school subjects."
- August 2nd* : Symposium : "The position and scope of geography in schools in the several countries represented by delegates."
Discussion : "The teaching of geography for international understanding."
- August 3rd* : Long excursions.
Formal Dinner.
- August 4th* : Discussions : "The treatment of local geography."
"School syllabuses."
"Tendentious matter in atlases and textbooks."
Excursions.
- August 6th* : Discussion : "Practical or activity geography."
Excursions.
Film show of films useful in the teaching of geography.
- August 7th* : Closing session : "The work of British and Foreign Geographical Associations and their co-ordination."
Business meeting if required, for the formation of an International Association of Teachers of Geography.

Some 40 delegates from overseas are known to be attending. Members who wish to attend should make *immediate* application as accommodation is limited. Accommodation for the Conference will be reserved for delegates at Crewe Hall (University Hall of Residence). The charge for the period from Monday, July 30th, to Tuesday morning, August 7th, will be £10-£12, inclusive of board residence, all gratuities, excursion fees, etc. A deposit of £2 must be paid to the Honorary Conference Organiser by all British delegates when reservations are made.

Applications for further information should be made at once to the Honorary Conference Organiser : Mr. T. W. Brown, King's School House, Cathedral Gardens, Gloucester.

PLEASE NOTE CHANGE OF ADDRESS OF CONFERENCE ORGANISER.

THE SPRING CONFERENCE, 1951

The Spring Conference for 1951 was held at Kingston-upon-Hull from March 30th to April 3rd and was well attended by members from all parts of the country as well as by local members. The Municipal Training College proved a most admirable headquarters for the Conference and those in residence there were extremely well looked after.

A feature of the Conference was the comprehensive programme of excursions and visits. Hull itself and its industries were studied and visited ; there was a most enjoyable river cruise on which the members enjoyed the hospitality of the Docks and Harbour Board ; there were excursions to Beverley and further afield to the Moors, the Vale of Pickering, the Wolds, Holderness and the sea, and there were lectures and an exhibition which illustrated all these items.

Visiting lecturers were Prof. Debenham, who spoke on "Livingstone's Africa and its future development" and Prof. Bowen who took as his subject "The cultural regions of northern England."

In addition there were two most interesting receptions, one at the University College, by kind invitation of the Principal, and the other at the Guildhall, where members of the Conference were the guests of the Lord Mayor. At the latter reception a very interesting exhibition of the more important of the City's records was explained by the Keeper of the Records.

At the end of the Conference the President thanked the local branch and the special Conference Committee for one of the happiest and most interesting Spring Conferences ever held by the Association. It is impossible to mention all who contributed to this excellent result, but two cannot possibly be left out of this short record—Mr. H. King, Head of the Geography Department in the University College and President of the Hull Branch, and Mr. H. F. Brown, the Conference Organiser.

L.B.

GEOGRAPHY BROADCASTS TO SCHOOLS

The Schools Broadcasting Council is at present making a special study of the requirements of broadcast geography talks to schools, and invites help from the Association in this matter.

The Hon. Secretary will be very pleased to receive, at Headquarters, any comments and criticisms (destructive or constructive in character) that members may care to make regarding recent or past geography broadcasts to schools. If members have comments to make regarding any of the broadcasts given during the first six weeks of the term these should be sent immediately to Headquarters, as a preliminary report is to be issued by the B.B.C. and we are anxious that our views should be adequately represented. A collective report on the later broadcasts and on the term as a whole can be sent in at the end of the term. We urge all members who can do so to support this work, sponsored by the executive committee.

NOTIFICATION OF CHANGES OF ADDRESS

It is especially requested that members notify Headquarters as early as possible of changes of address, particularly in cases of leaving college or temporary addresses, from which correspondence may not be forwarded. Failure to comply with this request results in non-receipt of *Geography* and other correspondence and involves the Association in considerable additional postage (due) on magazines returned and re-issued.

BACK NUMBERS OF *GEOGRAPHY*

A number of requests regarding complete sets of *Geography* have been received at Headquarters. To fulfil such orders, the Association requires a number of parts of *Geography* to complete sets held at Headquarters. Members who have copies of the following parts, which they are willing to donate or sell, are asked to write to the Assistant Secretary as soon as possible:—

Vol. I	Part 3	1902	Vol. XXV	Part 4	1940
" III	Parts 3 & 4	1905/6	" XXIX	" 4	1944
" IV	" 1 to 6	1907/8	" XXX	" 4	1945
" V	" 1 & 2	1909	" XXXI	Parts 1 & 3	1946
" VI	Part 6	1912	" XXXII	Part 1	1947
" VII	Parts 1 to 6	1913/14	" XXXIII	Parts 1 & 3	1948
" XI	Part 4	1922	" XXXIV	Part 3	1949
" XIII	" 6	1926	" XXXV	" 2	1950

The Association is extremely grateful to all members who have sent in back numbers of the magazine in the past year; early numbers have been greatly appreciated.

A special request has been received from Bedford College, University of London, for Vol. I, Parts 2 and 3, and Vol. 31, Part 3.

CORRECTIONS TO MARCH *Geography*

On page 32, line 21, "Domestic" should read "Democratic." Our printers accept full responsibility and tender their sincere apologies for this unfortunate misprint. On page 40, "Myers" in footnote 22 should read "Myres."

BRANCH VISITS TO HEADQUARTERS

We record with pleasure that the first visits to Headquarters from branches other than Sheffield are to take place on Saturday, May 26th, when both Leeds and Liverpool branches will include Headquarters and the Library in their itineraries of excursions in Sheffield and its region. The Leeds branch excursion will be met and led by Mr. S. R. Eyre, of the Department of Geography at the University of Sheffield, while Liverpool members are the guests of the Sheffield and District branch, being led by its chairman, Mr. F. J. Campbell in North Derbyshire, and by its president, Professor D. L. Linton, on a tour of Sheffield. Another branch visit takes place on Saturday, June 2nd, when the Derby branch comes to visit the Sheffield region under the leadership of Mr. A. J. Hunt, of the Department of Geography at the University. Arrangements for a number of school visits to Headquarters and Sheffield are also in hand.

An agreement has been reached with the publishers who loaned geography textbooks, etc., for display in February to allow the Association to retain these books for further display until the International Conference. The books will be exhibited during branch visits.

We are glad to inform visiting branches that facilities now exist at Headquarters to provide them with light refreshments (tea or coffee, biscuits) at a small charge. Requests for the provision of refreshments should be sent to the Assistant Secretary, giving at least one month's notice.

INTERNATIONAL GEOGRAPHICAL CONGRESS, WASHINGTON,
AUGUST 1952.

Those requiring information about arrangements for attendance at the Congress, presentation of papers, travel facilities, etc., should apply as soon as possible to the Assistant Secretary, Royal Society, Burlington House, London, W.1.

ROYAL GEOGRAPHICAL SOCIETY FESTIVAL EXHIBITION

During the Festival the Royal Geographical Society will be holding an exhibition illustrating the development of British maps and charts. It will be open without charge on week days from 10 a.m. to 5 p.m.; on Saturdays from 10 a.m. to 1 p.m. In the introductory historical section the outstanding exhibit will be the newly discovered Molyneux globe dated 1592, loaned to the Society through the kindness of Lord Leconfield. This was the first globe to be made in England. This section will also include the first physical globe, made by Dr. Keith Johnston, which was on show in the Great Exhibition of 1851.

The main section will show some of the latest maps of exploration and discovery; exhibits from the Hydrographic Department of the Admiralty, including a recent radar survey of the Channel; exhibits from the Ordnance Survey, including large scale plans for civil engineering work made from air photographs; special maps for air navigation from the Air Ministry and Ministry of Civil Aviation, including the use of radio and radar; and a series of maps prepared by the Ministry of Town and Country Planning showing how complicated information on population, land use, climate, mineral resources, etc., can be displayed cartographically. A special exhibit loaned by the Oxford University Press will show stages in the production of a new World Atlas to be published in September this year.

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We have pleasure in announcing that the Government of the U.S.A. is one of the Governments which subsidise the publication of our fully pictorial wall charts produced for the benefit of teachers in this country. This sponsorship makes available the following wall charts at greatly reduced prices in Great Britain only.

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REVIEWS OF FILM-STRIPS

BY THE VISUAL AIDS COMMITTEE.

Meet your Neighbour Series : How do you Travel

Educational Productions, Ltd., 17, Denbigh St., London, S.W.1.

Teaching Notes available.

Content : This is one of a series of film strips dealing with the study of local society. Although the general title is "Transport," the subject is considered from the point of view of the community, i.e., how transport has affected the life and work of man and how it has been affected by man's own progress in other directions. The strip is conveniently divided into sections, viz. : Travelling in Town; Travelling across Country; Travelling Overseas; Motor Transport; Rail Transport; Water Transport; Air Transport; Horse Transport; Transport in Other Lands. It is probably intended for the primary school.

Assessment : Apart from the last section this is mainly a social studies film-strip and offers little that is geographical. Nevertheless it is very fine and well planned. The teaching notes are excellent and many questions are suggested which would make the study of the strip an excellent educational experience for the children. From each frame the class would gain something stimulating and meaningful. The strip is worth having in a geography library for its last six frames alone, but every geography teacher would profit from a study of its teaching technique.

Physical Geography Series : Lakes

Common Ground, Ltd., Sydney Place, London, S.W.7.

Teaching Notes available.

Content : This is the first of a series of physical geography film-strips edited by Professor S. W. Wooldridge and designed for secondary schools. The strip is divided into four sections : lakes due to ice action; lakes due to river action; lakes due to movements of the earth's crust; lakes due to other causes. Photographs, block diagrams and maps are used.

Assessment : It is to be expected that the combined efforts of Mr. Gray, the author, and Professor Wooldridge, would result in a very scholarly and complete survey of the subject. The pictures have been selected and arranged with great care, while the diagrams and maps are superbly drawn. It would be difficult to find a clearer or better exposition of the topic for secondary schools. The treatment is too logical for use in primary schools. Even for secondary schools some suggestions of the effects as well as the causes of lakes might perhaps have added to the value of the strip without making it inordinately long. The teaching notes are exceptionally fine and superior to any known school textbook on the subject.

Exploring the Landscape : Snow and Ice.

Common Ground, Ltd., Sydney Place, London, S.W.7.

Teaching Notes available.

Content : This strip forms one of a series dealing in story form with physical geography for the primary school. The first four frames show the difficulties for human beings which result from heavy snowfall. Stories of glacier and iceberg formation follow and the strip of 25 frames finishes with examples of the ways in which men combat the problems of snow and ice.

Assessment : This strip is cleverly adapted to the needs and interests of children in the primary school. Each frame illustrates a technical term frequently used by physical geographers, but the word is incidentally and subtly introduced as part of a coherent and attractive story. Apart from one frame the photography is excellent. Each frame has one simple idea, and presents spectacularly and dramatically a sequence of natural phenomena. This strip should be used in every primary school, and there are few school certificate children who would not profit from its use. The teaching notes are excellent.

Atolls and Lagoons

Unicorn Head Visual Aids, Ltd., 177, The Vale, Acton, W.3.

Teaching Notes available.

Content : This strip presents in five photographs and fifteen diagrams a logical sequence of events leading to the formation of coral atolls. It is intended for children between 9 and 13 years old.

Assessment : If any teacher of geography has time to devote to this topic no doubt he would save himself effort by showing this strip. The effect of the rather crudely drawn diagrams, however, is to make the topic duller than it might be, though some diagrams are sufficiently unreal as to be comic, e.g., where fishes are shown as about one-quarter the size of a volcanic crater. The notes are written as if intended to be read out to a class passively looking at the frames.

Icebergs.

Unicorn Head Visual Aids, Ltd., 177, The Vale, Acton, W.3.

Teaching Notes available.

Content : This strip shows by means of photographs and diagrams the formation and behaviour of icebergs, their danger to shipping and the measures taken to avoid the dangers. It is intended for children aged 9 to 13 years.

Assessment : This is a good film strip and illustrates its story clearly and simply by good photography. Only part of the story, however, is suitable for the primary school children. Similarly the maps though very good are too difficult for juniors. A successful attempt has been made to give the strip a dramatic appeal while the notes supply additional information for the teacher.

Scottish Highlands.

Common Ground, Ltd., Sydney Place, London, S.W.7.

Teachers' Notes available. Age Range : 10-14.

Content : After two introductory maps and a population chart the strip is divided into three main sections : East Coast Lowlands (12 frames, including 1 map) ; Grampian Highlands (13 frames including 1 map) ; North West Highlands and Islands (16 frames including 1 map).

Assessment : With a few exceptions, the pictures bring out the characters of the different localities and man's response to the conditions which these characters impose on him. In particular, the isolation and lack of amenities of the crofting communities in the remoter parts of the Highlands and Islands are very well shown, leaving little doubt as to one reason for de-population. On the other hand the provision of air services is not forgotten ; nor is the importance of the tourist industry. In contrast to the generally satisfactory quality of the strip, a few frames are open to criticism. This applies particularly to a chart showing the decrease in population of Ross & Cromarty from 1851 to 1947. This has its base line at 60,000 instead of at 0, and so suggests a very much greater proportional decrease than has actually occurred. The relief maps tend to be misleading with regard to the width of lowland along the west coast ; whilst a picture of Mallaig is included in the section on the East Coast Lowlands, and another fishing port is not identified. The teaching notes provide good background information—though it might be suggested that geological explanations should not be too dogmatic—and are generally successful in drawing attention to the significant points in each frame. The strip is quite suitable for pupils in the 10-14 age range. It forms a good introduction to the Highlands, and could be used effectively for revision.

East Central Scotland.

Common Ground, Ltd., Sydney Place, London, S.W.7.

Teachers' Notes available. Age Range : 10-14.

Content : There are four main sections, following two introductory maps : Countryside and Farming (9 frames) ; Fishing (3 frames) ; Coal and Industry (9 frames, including 1 map) ; Towns (14 frames).

Assessment : In the first of these two strips the main emphasis is on coal, heavy industries and the Clyde, the sections dealing with the rural areas and the minor industries being much shorter. Most of the pictures show necessary and typical aspects of man's environment and life in the area, and include two excellent oblique aerial photographs. One or two pictures are puzzling, however, and a few may be considered superfluous. It is, perhaps, inevitable that, in a subject in

which industrial processes figure so largely, some of the illustrations are likely to stimulate questions of a technical rather than a geographical nature; and it is a minor criticism of this strip that the notes do not in all cases make clear the purpose of important elements in these pictures.

The second strip rightly emphasises the countryside, and stresses the siting and style of towns to a greater degree than their industrial aspects. The variety of the farming is well shown, and the selection of industries to be portrayed is good, though in one case the illustration is very obscure. The number and choice of pictures showing other facets of life is less satisfactory. Three of the views of Edinburgh could be dispensed with, and it is not necessary to have two pictures of golf links—and none of fruit growing in the Carse of Gowrie. Most of the aerial views are very effective, but the position of Stirling could be better shown from a different angle.

It is perhaps a little unfortunate that for the purpose of these strips Central Scotland, essentially one region, has been artificially divided into east and west. The difficulty of maintaining this separation is demonstrated by the use of identical maps of the whole of Central Scotland in both strips, and by the existence of both rural and industrial occupations common to both parts. The method adopted makes it impossible, moreover, to demonstrate conveniently the contrasts which undoubtedly exist, and in effect dictates to the teacher an approach to the region which he might not otherwise choose.

West Central Scotland.

Common Ground, Ltd., Sydney Place, London, S.W.7.
Teachers' Notes available. Age Range: 10-14.

Content: Introductory maps show relief, towns and routes of the whole of Central Scotland. The remainder of the strip is divided into four sections: Countryside and Farming (5 frames); Coal, Iron and Steel (9 frames, including 1 map); Other Industries (4 frames); The Clyde (10 frames). The final frame is a population map of Central Scotland.

North America : The Canadian Prairies.

Common Ground, Ltd., Sydney Place, London, S.W.7.
Teachers' Notes available.

Content: This strip consists of 5 maps, 1 diagram and 29 pictures. After two introductory maps it is divided into sections on: Grain Farming (12 frames); Other Farming (8 frames); Transporting Grain (13 frames).

Assessment: The dominance of the grain harvest is the keynote of this strip, though the growing importance of mixed farming on former one-crop land, and of stock and irrigation in the "Palliser Triangle" and the dry west of Alberta are emphasised in the section on "Other Farming." The few maps are clear and relevant, though the accuracy of the percentages of grain stated to be exported from the three chief ports is perhaps open to question. The pictures showing prairie farms and countryside, farming operations and the stages in wheat transport are photographically excellent and full of significant detail; they could be shown with advantage to children of almost any age group. It is to be regretted, however, that there is no picture of a true combine harvester. Some of the pictures in the "Other Farming" section are less satisfying, and the inclusion of "Oil" in this section—even though it is put in merely to illustrate the trend towards industrialisation—seems a little inappropriate. The notes give the teacher a very satisfactory background to the subject. The good qualities of the strip outweigh its defects.

North America : California.

Common Ground, Ltd., Sydney Place, London, S.W.7.
Teachers' Notes available.

Content: This strip, after two introductory maps, is divided into five sections: Contrasts (5 frames); Problems of Climate (7 frames, including 2 maps); Land Use (8 frames); Industries (15 frames); San Francisco and Los Angeles (6 frames).

Assessment: The aim followed is clearly to give a balanced picture of California and each of the five topics into which the strip is divided is well conceived to help in the accomplishment of this aim. In addition, other possible groupings of frames are suggested in the notes to allow of alternative approaches to the subject. Most of the pictures are good photographically and have the qualities of relevance,

simplicity and clarity ; some are really excellent. Aerial views, all oblique, are used to good effect. In one respect, balance is not fully achieved, since the cooler northern part of the state is inadequately portrayed. In one or two instances more representative illustrations might have been used. Apart from these small blemishes, however, this is a good strip which, by judicious selection of frames, could be used as an introduction to California for children of any age from 10 to 16 ; as a whole it is useful for revision purposes.

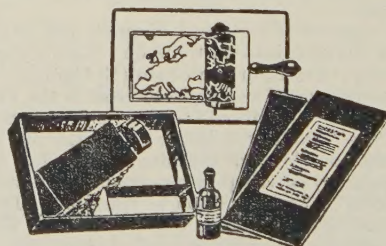
Canada No. 4 : The Maritime Provinces and Newfoundland.

Educational Productions, Ltd., 17, Denbigh St., London, S.W.1.
Teaching Notes available.

Content : This strip provides a pictorial supplement to geographical notes on the Maritime Provinces and Newfoundland. Each province is treated separately and logically after a general survey of location, relief and climate has been given. The strip is probably intended for secondary schools.

Assessment : It would be difficult to find a strip in which modern techniques of teaching have been so completely ignored or in which up-to-date ideas on the content and purpose of geography so deliberately flouted. It would seem that the author thinks of geography as a gazetteer subject of unrelated pseudo-scientific information with no particular meaning or significance to children. The frame of Charlottetown shows a distant view of a seaside town that might have been almost anywhere. The Gaspé Peninsula is described in the notes as "the protruding lower lip of the St. Lawrence." This monstrous perversion of the truth is just one example of the dangerous unreality that lurks behind this strip. Some of the pictures are good and educationally useful ; rearranged in useful teaching order many of them could be employed to stimulate interested thought and discussion. As it stands they merely help a child to memorise unrelated and often meaningless facts.

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Branch Membership: Local Branches may charge a fee to members participating in their activities; this fee is additional to the above-mentioned subscriptions.

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School Membership: Special attention is drawn to the arrangements whereby a college or school may subscribe to receive *Geography* and to use the Library, paying £1-5/- per year, and having the right to borrow six books at a time, the school paying postage both ways. Responsibility for the loans must be undertaken by the Principal, Head or recognised lecturer or teacher.

Cheques and postal orders in payment of subscriptions should be crossed and made payable to the Geographical Association. They should be sent to the Assistant Secretary, Geographical Association, c/o The Park Branch Library, Duke Street, Sheffield, 2. Branch members may pay their full subscriptions through their local branch secretary or treasurer.

The following may be obtained from the Assistant Secretary, Geographical Association, c/o The Park Branch Library, Duke Street, Sheffield, 2.

1. Local Studies. Revised and Enlarged edition (1949) prepared by members of the Standing Committee for Geography in Secondary Schools. Price 3/-, post free; if supplied through a bookseller, 3/3.
2. Catalogue of the Library of the Association. (Out of print; a new edition is in course of preparation.)
3. Suggestions for the Teaching of Geography. Drawn up by the Standing Committee for Geography in Primary Schools. New edition, 2/-, post free; if supplied through a bookseller, 2/3.
4. Class and Reference Books in Geography for Form VI. 8d., post free.
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